UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

Certified Mail: 7013 1090 0000 1618 6586
Return Receipt Requested

1 May 2015

Carl R. Ice, President
BNSF Railway Company
2650 Lou Menk Drive
Fort Worth, TX 76131

Jon I. Stevens, President
Santa Fe Pacific Railroad Company
2650 Lou Menk Drive
Fort Worth, TX 76131

Re: General Notice Letter
Haystack Mines Site
Grants Mining District, McKinley County, New Mexico

Dear Mr. Ice and Mr. Stevens:

The United States Environmental Protection Agency ("EPA") is spending public funds to investigate and control releases or potential releases of hazardous substances, pollutants or contaminants from the Haystack Mines Site, Grants Mining District, McKinley County, New Mexico (the "Site"). Under Sections 106(a) and 107(a) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), commonly known as Superfund, Potentially Responsible Parties ("PRPs") may be required to perform cleanup actions to protect the public health, welfare, or the environment. PRPs may also be responsible for all costs incurred by EPA in responding to any release or threatened release at the Site, as defined below. PRPs include current and former owners and operators of facilities at which hazardous substances were disposed of, persons who arranged for the disposal of hazardous substances at a facility ("generators"), and persons who accepted hazardous substances for transport to a facility ("transporters").

EPA has evaluated information obtained through its investigation of the Site, and has determined that BNSF Railway Company ("BNSF") is a PRP as a former operator (successor-in-interest to Haystack Mountain Development Company). Santa Fe Pacific Railroad Company (a current subsidiary of BNSF Railway Company) is a PRP as a former owner of mineral rights at a portion of the Site.

Site Background

The Site is located within the Eastern Abandoned Uranium Mines Region, in the Baca/Prewitt area of McKinley County, New Mexico. The Site consists of at least three contiguous abandoned uranium mines. Portions of the Site have been referred to historically as the Brown-Vandever-Nanabah mines, and the Bluewater mines, among other aliases. The Site is located on four parcels of land, which include two Indian Allotment parcels, one Federal parcel administered by the Bureau of Land Management, and one privately owned parcel. Portions of the Site are located in Navajo Indian Country.

The Haystack Mines Site is located in and around NW ¼ Section 19, Township 13N, Range 10W; SW ¼ Section 18, Township 13N, Range 10W; SE ¼ Section 13, Township 13N, Range 11W; and NE ¼ Section 24, Township 13N, Range 11W. See Attachment 1 for a map of the Site.

The Haystack No. 1 Mine is one of the historic uranium mines that make up part of the Site. The Haystack No. 1 Mine was located on Section 19 and Section 18, described above, and was an open-pit complex mine. The Haystack No. 1 mine was operated by Haystack Mountain Development Company ("HMDC") during the years 1952-1957, 1959-1961 and 1963-1965. During this time period, HMDC produced in excess of 130,000 tons of uranium ore. See Attachment 2.

In 1987, Haystack Mountain Development Company merged into the Atchison, Topeka and Santa Fe Railway Company. On December 31, 1996, the Atchison, Topeka and Santa Fe Railway Company merged into Burlington Northern Railroad Company and the surviving company was called Burlington Northern and Santa Fe Railway Company. In 2005, the Burlington Northern and Santa Fe Railway Company changed its name to BNSF Railway Company.

At the time of mining of the uranium ore, Santa Fe Pacific Railroad Company ("SFPR") owned the mineral rights on Section 19, Township 13N, Range 10W. SFPR is a subsidiary of BNSF. During SFPR's ownership, more than 130,000 tons of uranium ore was produced from Section 19.

On July 29th, 1991, EPA issued an Administrative Order pursuant to Section 106 of CERCLA, 42 U.S.C. Section 9606(a), to the Cerrillos Land Company, Santa Fe Pacific Railroad Company, and the Atchison, Topeka & Santa Fe Railway Company (collectively, the "Respondents"). The Order required the Respondents to reduce radiation emissions from mine waste piles and areas where mining had exposed the uranium rich limestone and to post warning signs. Removal clean-up actions followed, performed by a contractor for Cerrillos Land Company under EPA oversight. See Attachment 3.

In May, 2009, elevated gamma radiation measurements were collected from the area now known as the Haystack Mines Site. EPA has performed a removal site evaluation and is planning further actions, including an emergency response action. See Attachment 4.

While this letter discusses only the information related to the Haystack Mines Site, EPA has additional information indicating that BNSF is likely a PRP at several other abandoned uranium mines in the area.

General Notice

BNSF is the successor-in-interest to Haystack Mountain Development Company and is potentially liable as a former operator of the Haystack No.1 Mine. SFPR is potentially liable as owner of the mineral rights of the property at the time the uranium mining occurred.

Administrative Record

Pursuant to Section 113(k) of CERCLA, EPA must establish an administrative record file that contains documents that form the basis of EPA's decisions on the selection of response actions for the Sites. The administrative record file, which contains the documents related to the response actions that are ultimately selected for the Sites, will be created and made available to the public for inspection and comment once the Agency completes sampling and characterization of the Site, completes a study of various cleanup options, and drafts a document selecting proposed response actions.

At the time of its creation, the administrative record file(s) for the Site will be made available for inspection at EPA's Regional Office in San Francisco, located at 75 Hawthorne Street, 9th floor.

Change in Financial Status:

On a related subject, now that BNSF Railway Company and Santa Fe Pacific Railroad Company have been provided with this General Notice Letter, please note that EPA has a potential claim against BNSF Railway Company and Santa Fe Pacific Railroad Company. If these companies' financial status changes in any significant way, i.e., filing for bankruptcy, they must include EPA as a creditor.

Requested Action:

Please provide EPA with the name, address, and telephone number of the person to whom EPA should direct future correspondence on behalf of BNSF Railway Company and Santa Fe Pacific Railroad Company. If you are already involved in discussions with State or local authorities, are engaged in voluntary cleanup action, or are involved in a lawsuit regarding the Site, you should continue such activities as appropriate. This letter is not intended to advise you or to direct you to restrict or to discontinue any such activities; however, you are advised to report the status of those discussions or actions in your response to this letter, and to provide a copy of the response to any other parties involved in those discussions or actions.

Your response should be made in writing and submitted to EPA within thirty (30) days of receipt of this letter. Your response should be directed to:

Randy Nattis (SFD-9-2)
U.S. Environmental Protection Agency, Region IX
75 Hawthorne Street
San Francisco, CA 94105

Please direct any technical questions with respect to the Site to the Federal On Scene Coordinator ("OSC") Randy Nattis at (415) 972-3053, or you may email him at nattis.randy@epa.gov. Please direct any legal questions to EPA Assistant Regional Counsel Sarah Mueller at (415) 972-3953 or you may email her at mueller.sarah@epa.gov.

Thank you for your attention to this matter.

Sincerely,

Clancy Tenley, Assistant Director
Partnerships, Land Revitalization & Cleanup Branch
Superfund Division

cc: Dave Taylor, Navajo Nation Department of Justice
Pamela Travis, EPA Assistant Regional Counsel, EPA Region VI
Warren Zehner, Federal On Scene Coordinator, EPA Region VI

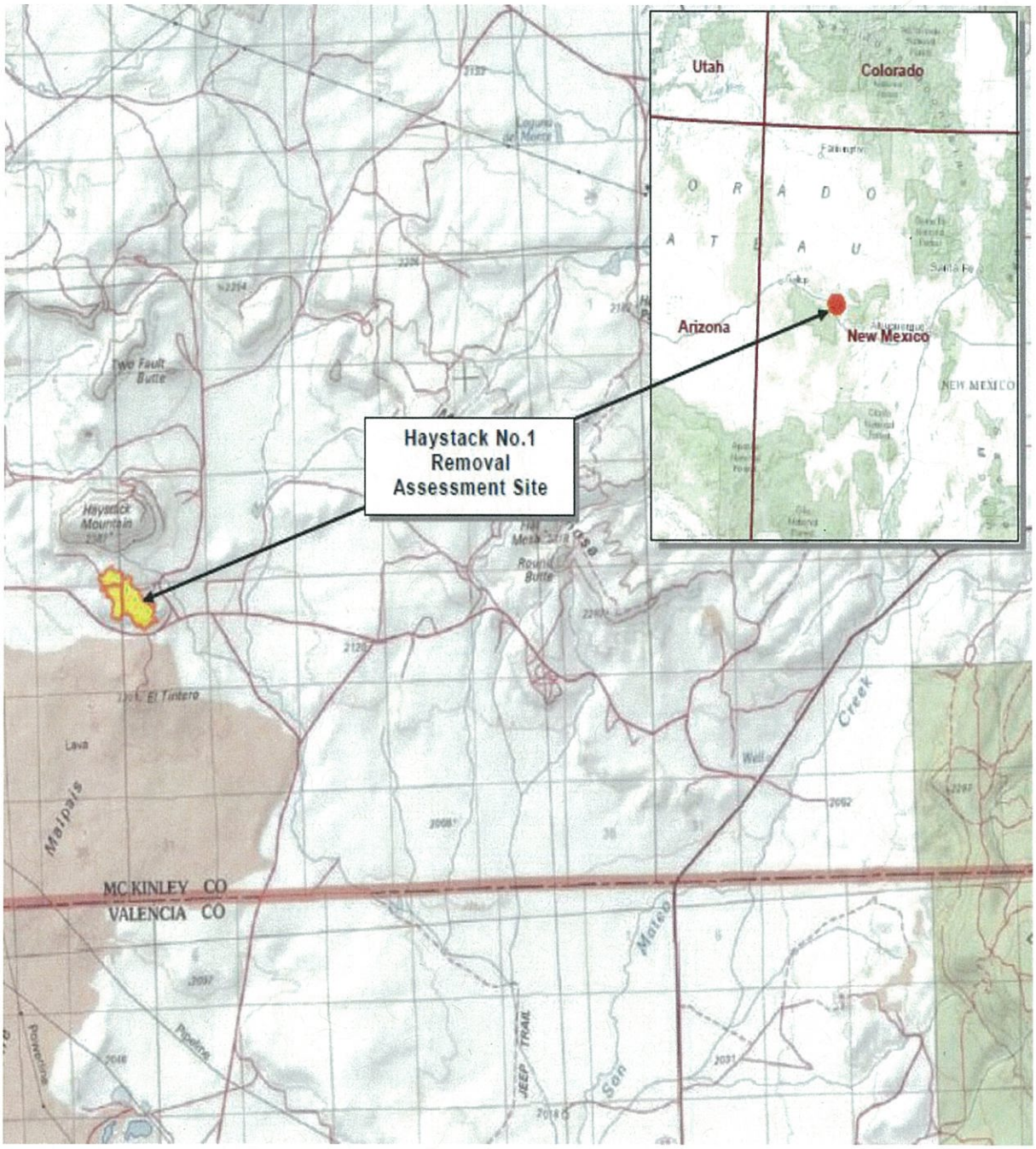
Attachments:

1. Map
2. Atomic Energy Commission (AEC) ore production records (1948 – 1965)
3. EPA Administrative Order 91-16. July 1991
4. Site Screen Report, Haystack No.1 - AUM Site, Weston Solutions, Inc. May 2009

Attachment 1

Map

Map


Haystack No.1
Removal
Assessment Site
Utah
Colorado
Arizona
New Mexico
Two Fault Butte
Haystack Mountain
Round Butte
El Tintero
Lava
Malpais
MC KINLEY CO
VALENCIA CO
Creek
Pipeline
JEEP TRAIL
San Mateo

Attachment 2

Atomic Energy Commission (AEC) Ore Production Records

1948 – 1965

G R E P R O D U C T I O N R E P O R T

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEARS 1948 THRU 1953

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
			SILVER SPUR 5 SEC3 alg 52	32.35	93.32	.14	183.70	.28	.04
			TOTAL " "	32.35	93.32	.14	183.70	.28	.04
		ELKINS JOSEPHINE							
			ELKINS GROUP	11.45	25.19	.11	29.77	.13	.01
			TOTAL " "	11.45	25.19	.11	29.77	.13	.01
		FOUTZ MINING CO							
			FOUTZ 1	194.39	1,280.77	.33	2,509.55	.65	.64
			FOUTZ 2	166.99	715.05	.21	1,956.62	.59	.35
			FOUTZ 3 Y J	350.66	648.71	.09	1,970.62	.28	.32
			TOTAL " "	712.06	2,644.53	.19	6,436.79	.45	1.32
		GREER W A							
			SILVER SPUR 5 SEC3 53	19.14	42.11	.11	42.11	.11	.02
			TOTAL " "	19.14	42.11	.11	42.11	.11	.02
		HAGENS FITZHUGH							
			RED CAP GROUP	127.22	282.95	.11	485.67	.19	.14
			SEC 28 BECENTI 53	78.41	243.49	.16	463.61	.30	.12
			TOTAL " "	205.63	526.44	.13	949.28	.23	.26
		HANOSH MINES							
			FOUTZ 1	129.94	563.39	.22	166.11	.06	.28
			SEC 26 NEQ	3,649.79	23,604.67	.32	8,009.52	.12	11.80
			TOTAL " "	3,779.73	24,168.06	.32	8,175.63	.12	12.08
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10 HB	7,492.00	35,982.00	.24			17.99
			SEC 19 SEQ 13 9 PC	22,256.00	111,280.00	.25			55.64
			SEC 31 14 9W NWQW	772.50	3,479.14	.23	2,831.27	.18	1.73
			TOTAL 13 " "	30,520.50	150,741.14	.25	2,831.27	.18	75.37
		HENRY ANDREWS							
			ALTA SEC 5 + 6	12.75	135.16	.53	145.36	.57	.06
			TOTAL " "	12.75	135.16	.53	145.36	.57	.06
		MADDOX + TEAGUE							
			BILLY THE KID	357.83	972.43	.14	1,635.69	.23	.48
			TOTAL " "	357.83	972.43	.14	1,635.69	.23	.48
		MANOL F O							
			SEC 30 WH SWQ	9,298.95	55,671.78	.30	37,623.78	.20	27.83
			TOTAL " "	9,298.95	55,671.78	.30	37,623.78	.20	27.83

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1954

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
		ANACONDA COMPANY							
			ALTA	845.03	4,718.07	.43	3,133.17	.29	2.35
			EVELYN	1,222.21	7,575.01	.31	10,983.41	.45	3.78
			FRANCIS	28.12	134.96	.24	269.92	.48	.06
			FRANCIS 11	97.69	492.92	.25	921.47	.47	.24
			TOTAL	1,893.05	12,920.96	.34	15,307.97	.40	6.46
		BERRYHILL ELKINS							
			LOST MINE	9.75	3.90	.02	3.90	.02	
			TOTAL	9.75	3.90	.02	3.90	.02	
		BROWN + WALLACE							
			SEC 24 13N 11W	54.57	70.91	.06	102.55	.09	.03
			TOTAL	54.57	70.91	.06	102.55	.09	.03
		CONTINENTAL DIVI							
			BILLY THE KID	99.92	214.55	.11	471.62	.24	.10
			TOTAL	99.92	214.55	.11	471.62	.24	.10
		DAKOTA MINING CO							
			PAT SEC 4 13N 10W	22.85	54.83	.12	94.76	.21	.02
			TOTAL	22.85	54.83	.12	94.76	.21	.02
		FARRIS MINES INC							
			LAWRENCE ELKINS	18.35	29.36	.08	69.72	.19	.01
			TOTAL	18.35	29.36	.08	69.72	.19	.01
		FOUTZ MINING CO							
			FOUTZ 2	74.96	329.95	.22	920.62	.61	.16
			FOUTZ 3 Y J	364.77	1,087.67	.15	1,987.26	.27	.54
			SANTA FE 3YJ	15.44	138.97	.45	160.59	.52	.06
			TOTAL	455.17	1,556.59	.17	3,068.47	.34	.77
		GENERAL URAN MNG							
			DIAMOND 2	242.66	858.58	.18	481.89	.10	.42
			TOTAL	242.66	858.58	.18	481.89	.10	.42
		HANOSH MINES INC							
			SEC 26 NEQ	4,548.70	37,677.09	.41	5,259.03	.06	18.83
			TOTAL	4,548.70	37,677.09	.41	5,259.03	.06	18.83
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10	35,031.61	155,727.59	.22	151,046.09	.22	77.86

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1954

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			SEC 19 SEQ 13 9	34,555.27	180,990.49	.26	101,726.79	.15	90.49
			SEC 19NEQ 13 9	2,904.95	12,706.27	.22	11,364.43	.20	6.35
			SEC 31 14 9W NWOW	3,189.21	16,151.81	.25	18,796.90	.29	8.07
			TOTAL	75,681.04	365,576.16	.24	282,934.21	.19	182.78
		JACKPOT OIL CO							
			TOM ELKINS	28.51	96.94	.17	131.16	.23	.04
			TOTAL	28.51	96.94	.17	131.16	.23	.04
		LEA EXPL CORP							
			NLSA TOP 18	682.32	4,657.60	.34	3,190.58	.23	2.32
			TOTAL	682.32	4,657.60	.24	3,190.58	.23	2.32
		MANOL F O							
			SEC 3[illegible] WH SWQ	6,160.42	41,727.36	.34	13,653.82	.11	20.86
			TOTAL	6,160.42	41,727.36	.34	13,653.82	.11	20.86
		MUNSON + SKULT							
			RIMROCK	41.05	76.35	.09	184.74	.23	.03
			TOTAL	41.05	76.35	.09	184.74	.23	.03
		SHAW R M							
			SEC 16	360.46	837.32	.12	515.10	.07	.41
			TOTAL	360.46	837.32	.12	515.10	.07	.41
		TUCKER HYDE DAVE							
			BECENTI	20.97	55.86	.13	29.55	.07	.02
			HOGBACK 3	178.95	613.16	.17	101.54	.03	.30
			TOTAL	199.92	669.02	.17	131.09	.03	.33
		WILLIAMS+REYNOLD							
			U MINE	668.16	2,289.43	.17	975.83	.07	1.14
			TOTAL	668.16	2,289.43	.17	975.83	.07	1.14
		WILLIAMS GLEN O							
			SEC 24 13N 11W	8,786.04	38,913.49	.22	33,904.27	.19	19.45
			TOTAL	8,786.04	38,913.49	.22	33,904.27	.19	19.45
	MCKINLEY COUNTY TOTAL			99,946.94	508,230.44	.25	360,480.71	.18	254.11
NORA									
		GALISTEO MINING							

G R - P R O D U C T I O N R E P O R T

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1955

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
		HAWKINS KELLY+B							
			NAPANE SEC 25 R14W	9.23	35.06	.19	3.69	.02	.01
			TOTAL * *	9.23	35.06	.19	3.69	.02	.01
	HIDALGO COUNTY TOTAL * *			9.23	35.06	.19	3.69	.02	.01
	MCKINLEY								
		ANACONDA COMPANY							
			ALTA	823.60	8,597.03	.52	7,163.48	.43	4.29
			EVELYN	225.21	918.71	.20	1,644.64	.37	.45
			TOTAL * *	1,048.81	9,515.74	.45	8,808.12	.42	4.75
		BROWN + WALLACE							
			BLUE PEAK	39.23	79.74	.12	79.74	.12	.03
			TOTAL * *	39.23	79.74	.12	79.74	.12	.03
		FIELDS GEORGE H							
			SILVER BIT	194.07	2,103.51	.54	2,840.97	.73	1.05
			TOTAL * *	194.07	2,103.51	.54	2,840.97	.73	1.05
		FOUTZ MINING CO							
			FOUTZ J Y J	1,681.50	8,680.23	.20	8,347.75	.25	3.34
			TOTAL * *	1,681.50	8,680.23	.20	8,347.75	.25	3.34
		FRONTIER URANIUM							
			U MINE	542.64	2,194.83	.20	949.81	.09	1.09
			TOTAL * *	542.64	2,194.83	.20	949.81	.09	1.09
		GENERAL URANIUM							
			DIAMOND 2	2,099.08	7,346.71	.18	3,785.20	.09	3.67
			TOTAL * *	2,099.08	7,346.71	.18	3,785.20	.09	3.67
		GREENE FLOYD							
			UNIDENTIFIED	.80	.06		.16	.01	
			TOTAL * *	.80	.06		.16	.01	
		HANOSH MINES INC							
			SEC 26 NEG	2,194.04	18,169.23	.41	3,262.40	.07	9.08
			TOTAL * *	2,194.04	18,169.23	.41	3,262.40	.07	9.08
		HAYSTACK MT DEVE							

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1955

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			SEC 19NWQ 13 10	54,658.00	204,885.00	.19			102.44
			SEC 19 SEQ 13 9	32,917.00	179,193.00	.27			89.59
			SEC 25 13 10 SEQ	7,193.49	24,497.56	.17	9,116.62	.06	12.24
			TOTAL * *	94,768.49	408,575.50	.22	9,116.62	.06	204.28
		HOLLY CORPORATIC							
			FLAT TOP VIL HYDE4	6,094.11	31,360.25	.26	21,309.05	.17	15.68
			SILVER SPUR & SECS	202.09	1,317.68	.33	1,170.48	.29	.65
			TOTAL * *	6,296.20	32,677.93	.26	22,479.53	.18	16.33
		HYDE URANIUM CO							
			HOGBACK 4 + 5	105.94	374.31	.18	80.70	.04	.18
			TOTAL * *	105.94	374.31	.18	80.70	.04	.18
		LARGO URANIUM CO							
			DIAMOND 2	51.87	96.93	.09	58.84	.06	.04
			TOTAL * *	51.87	96.93	.09	58.84	.06	.04
		LEA EXPL CORP							
			MESA TOP MINE	18,025.65	90,397.58	.25	60,128.98	.17	45.19
			TOTAL * *	18,025.65	90,397.58	.25	60,128.98	.17	45.19
		MANGE F O							
			SEC 31 WH SWC	4,940.94	38,690.72	.39	6,771.87	.07	19.34
			TOTAL * *	4,940.94	38,690.72	.39	6,771.87	.07	19.34
		MC ELVAIN BROS							
			RED POINT LODE	84.93	292.08	.17	192.17	.11	.14
			TOTAL * *	84.93	292.08	.17	192.17	.11	.14
		MONSON + SKULT							
			SEC 36 13N 16W	273.02	734.04	.13	571.25	.10	.36
			TOTAL * *	273.02	734.04	.13	571.25	.10	.36
		RED TOP URAN MIN							
			RED TOP 1 + 2	165.52	389.82	.12	1,267.57	.39	.19
			TOTAL * *	165.52	389.82	.12	1,267.57	.39	.19
		SANTA FE URAN CO							
			SEC 18 SWQ	314.34	827.21	.13	2,103.80	.33	.41
			SEC 24 13N 11W	4,513.77	21,495.25	.24	16,677.75	.18	10.74
			TOTAL * *	4,828.11	22,322.46	.23	18,781.55	.19	11.16
		ST MICHAELS CFI							

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1956

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
	MCKINLEY								
		FEDERAL URAN COR							
			SEC 18 SWQ	935.86	3,248.44	.17	6,643.83	.35	1.62
			SEC 24 13N 11W NEQ	83.92	335.67	.20	235.60	.14	.16
			TOTAL	1,019.78	3,584.11	.18	6,878.85	.34	1.79
		FIELDS GEORGE W							
			SILVER BIT 7	13.34	456.07	1.71	498.75	1.87	.22
			TOTAL	13.34	456.07	1.71	498.75	1.87	.22
		FLORIDA MINERALS							
			LA JARA 3	16.99	30.58	.09	183.00	.54	.01
			TOTAL	16.99	30.58	.09	183.00	.54	.01
		GENERAL URAN MIN							
			DIAMOND 2	9,529.63	39,314.51	.21	15,794.49	.08	19.65
			TOTAL	9,529.63	39,314.51	.21	15,794.49	.08	19.65
		HAYSTACK MT DEVE							
			EC 19NWQ 13 10	5,023.27	20,117.67	.20	14,307.88	.14	10.05
			SEC 19 SEQ 13 9	41,934.83	214,081.25	.26	165,445.28	.20	107.04
			SEC 25 13 10 SEQ	42,813.66	146,677.27	.17	115,561.20	.13	73.33
			TOTAL	89,791.76	380,876.19	.21	295,314.36	.16	190.43
		HOLLY CORPORATIC							
			BEACON HILL MINE	15.06	217.11	.72	111.57	.37	.10
			BEACON HILL 23	3,691.40	41,272.51	.53	16,962.53	.22	20.63
			FLAT TOP VIL HYDE4	18,136.02	73,218.40	.20	39,136.63	.11	36.65
			MESA TOP MINE	381.41	1,598.01	.21	1,106.54	.15	.79
			MESA TOP 18	521.09	2,397.02	.23			1.19
			SILVER SPUR 1SEC31	11.63	34.48	.15	48.85	.21	.01
			TOTAL	22,956.63	118,837.53	.26	57,386.12	.13	59.41
		HYDE URANIUM CO							
			HOGBACK 4 + 5	97.67	244.30	.13	61.67	.03	.12
			TOTAL	97.67	244.30	.13	61.67	.03	.12
		LARGO URANIUM CO							
			DIAMOND 2	2,946.15	12,578.20	.21	4,350.00	.07	6.28

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1957

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
		TOTAL		486.99	1,544.07	.16	693.94	.10	.77
		DAKOTA MINING CO							
			PAT SEC 4 13N 10W	7.56	25.71	.17	29.00	.19	.01
		TOTAL		7.56	25.71	.17	29.00	.19	.01
		FEBCO MINES							
			SILVER SPUR 5 SEC3	1,713.25	10,638.76	.31	3,334.00	.27	5.31
		TOTAL		1,713.25	10,638.76	.31	3,334.00	.27	5.31
		FEDERAL URAN COR							
			SEC 18 SWQ	2,770.89	9,687.94	.17	10,483.41	.19	4.84
			SEC 24 13N 11W NEQ	868.43	5,200.82	.30	3,212.08	.18	2.60
		TOTAL		3,639.32	14,888.76	.20	13,695.49	.19	7.44
		FLAT TOP MINING							
			FLAT TOP VIL HYDE4	418.03	1,372.17	.16	566.63	.07	.68
		TOTAL		418.03	1,372.17	.16	566.63	.07	.68
		FOUR CORNERS EXP							
			DOG GROUP	1,469.69	7,446.73	.25			3.72
		TOTAL		1,469.69	7,446.73	.25			3.72
		HANOSH MINES INC							
			SEC 26 NEQ	717.28	4,300.83	.30	987.25	.07	2.15
		TOTAL		717.28	4,300.83	.30	987.25	.07	2.15
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10	10,110.00	44,767.00	.22			22.38
			SEC 19 SEQ 13 9	21,864.00	82,005.00	.19			41.00
			SEC 23 10N 13W	8,569.69	57,852.78	.34	10,256.11	.06	28.92
			SEC 25 13 10 SEQ	16,004.17	74,443.34	.23	28,970.44	.09	37.22
		TOTAL		56,567.86	259,068.12	.23	39,226.55	.08	129.53
		HOLLY CORPORATIO							
			BUCKY	3,795.88	36,713.55	.48	239.90	.15	18.35
			FLAT TOP VIL HYDE4	4,795.29	25,425.52	.27	5,111.55	.05	12.71
			MESA TOP MINE	43.62	305.32	.35	191.91	.22	.15
		TOTAL		8,634.79	62,444.39	.36	5,543.36	.06	31.22
		KERMAC NUCLEAR F							
			SEC 10	38.55	161.91	.21			.08
		TOTAL		38.55	161.91	.21			.08
		LARGO URANIUM CO							

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1958

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			TOTAL * *	76,145.91	404,330.69	.27	603.08	.04	202.16
		CHENA MINING INC							
			PINROCK	39.59	102.94	.13			.05
			TOTAL * *	39.59	102.94	.13			.05
		DALCO URANIUM IN							
			DALCO 1 SEC 30	11,416.85	44,305.09	.19			22.15
			TOTAL * *	11,416.85	44,305.09	.19			22.15
		FEBCO MINES							
			SILVER SPUR 5 SEC3	1,821.50	9,180.07	.25	6,367.40	.26	4.59
			TOTAL * *	1,821.50	9,180.07	.25	6,367.40	.26	4.59
		FEDERAL URAN COR							
			SEC 18 SWQ	8,590.62	39,613.47	.23			19.80
			TOTAL * *	8,590.62	39,613.47	.23			19.80
		FLAT TOP MINING							
			FLAT TOP VIL HYDE4	774.72	3,354.13	.22			1.67
			FLAT TOP 1 SEC 30	767.95	3,603.25	.23			1.80
			FLAT TOP 3	424.05	2,035.44	.24			1.01
			TOTAL * *	1,965.72	8,992.82	.23			4.49
		FOUR CORNERS EXP							
			DDG 5	1,077.20	6,170.20	.29			3.08
			DDG 15 SEC 20	2,001.32	9,919.33	.25			4.95
			EAST MALPAIS 14	9,127.15	46,991.48	.26			23.49
			MALPAIS	2,480.39	12,332.55	.25			6.16
			TOTAL * *	14,686.06	75,413.66	.26			37.70
		HAYSTACK MTN DEV							
			SECTION 13 13N 11W	275.76	773.98	.14			.38
			SEC 19 SEQ 13 9	16,851.03	87,039.74	.26	42,711.31	.17	43.51
			SEC 23 PIOW T13N	7,314.43	42,551.57	.29			21.27
			SEC 25 SEQ T13N 10	13,776.16	61,993.88	.23			30.99
			SEC 31 NWQ 13N 9W	5,566.93	31,955.53	.29			15.97
			TOTAL * *	43,784.31	224,314.70	.26	42,711.31	.17	112.15
		HOLLY COPPERATIC							
			BUCKY	15,002.34	72,932.67	.24			36.46
			JEEP 6	524.88	2,590.74	.25			1.29
			MALPAIS	3,541.75	21,278.74	.30			10.63
			MESA TOP MINE	9,942.29	47,450.43	.24			23.72

C R E P R O D U C T I O N R E P O R T

BY CONTRULLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1959

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
	MCKINLEY								
			TOTAL * *	12,559.92	48,335.18	.19			24.16
		FARRIS MINING CO							
			BLUE PEAK	1,918.82	5,526.57	.14			2.76
			GARCIA CLAIMS	874.99	2,874.18	.16			1.43
			TOTAL * *	2,793.81	8,400.75	.15			4.20
		FEBCO MINES							
			SILVER SPUR & SEC3	743.32	2,646.06	.18	1,582.07	.22	1.32
			TOTAL * *	743.32	2,646.06	.18	1,582.07	.22	1.32
		FEDERAL URAN COR							
			SEC 16 SWO	1,489.47	5,921.11	.20			2.96
			TOTAL * *	1,489.47	5,921.11	.20			2.96
		FERRIS MINING CO							
			BLUE PEAK	956.90	2,744.65	.14			1.37
			TOTAL * *	956.90	2,744.65	.14			1.37
		FLAT TOP MINING							
			FLAT TOP VIL HYDE4	1,568.56	6,906.22	.22			3.45
			FLAT TOP 1 SEC 30	508.46	2,745.71	.27			1.37
			FLAT TOP 3	1,806.28	9,146.97	.25			4.57
			TOTAL * *	3,885.30	18,798.90	.24			9.39
		FOUR CORNERS EXP							
			DOG 5	13,726.47	62,837.31	.23			31.41
			EAST MALPAIS 14	10,077.95	45,213.60	.22			22.60
			HOGAN MINE SEC 14	29,384.43	176,821.92	.30			88.41
			TOTAL * *	53,190.83	284,872.83	.27			142.43
		HAYSTACK MT DEVE							
			SEC 19NWO 13 1J	2,179.63	10,017.97	.23			5.00
			SEC 19 SEO 13 9	8,863.20	43,255.62	.24	16,846.58	.19	21.62
			SEC 25 13 10 SEO	30,413.37	143,491.86	.24			71.74
			TOTAL * *	41,456.20	196,765.45	.24	16,846.58	.19	98.38
		HOMESTAKE NEW ME							
			SEC 32	67,975.09	278,755.95	.21			139.37

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1960

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			SEC 33 14N 9W	51,850.01	218,274.75	.21			109.13
			TOTAL * *	201,442.34	776,296.72	.19			388.14
		BIBO ARTHUR							
			HAYSTACK 2	1,808.08	7,780.75	.22			3.89
			TOTAL * *	1,808.08	7,780.75	.22			3.89
		BOYLES BROS DRIL							
			MARY 1	18,918.96	54,275.70	.14			27.13
			TOTAL * *	18,918.96	54,275.70	.14			27.13
		CALUMET + HECLA							
			MARQUEZ	138,467.63	657,674.03	.24			328.83
			TOTAL * *	138,467.63	657,674.03	.24			328.83
		DALCO URANIUM IN							
			BARBARA J 1	5,939.30	22,668.44	.19			11.33
			WHITE CAP	240.29	672.81	.14			.33
			TOTAL * *	6,179.59	23,341.25	.19			11.67
		FARRIS MINING CO							
			BLUE PEAK	127.87	539.62	.21			.26
			POISON CANYON	10,627.76	33,439.42	.16			16.71
			SECTION 6 14N 11W	273.39	1,416.35	.26			.70
			TOTAL * *	11,029.02	35,395.39	.16			17.69
		FEBCO MINES							
			RIALTO MINE	3,451.50	12,513.25	.18			6.25
			TOTAL * *	3,451.50	12,513.25	.18			6.25
		FOUR CORNERS EXP							
			DOG MINE	4,354.66	17,707.10	.20			8.85
			EAST MALPAIS	7,600.06	30,566.17	.20			15.28
			HOGAN MINE SEC 14	45,542.51	195,781.34	.21			97.89
			TOTAL * *	57,497.23	244,054.61	.21			122.02
		FOUR CORNERS EXP							
			DOG 19 SEC 20	570.00	1,881.00	.17			.94
			EAST MALPAIS 14	1,046.88	4,713.96	.23			2.35
			HOGAN MINE SEC 14	6,141.80	25,975.91	.21			12.98
			TOTAL * *	7,758.68	32,570.87	.21			16.28
		HAYSTACK MT DEVE							
			SEC 19NW0 13 10	8,853.13	32,798.99	.19			16.39

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1960

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			SEC 19NEQ 13 9	1,064.18	4,322.88	.20			2.16
			SEC 25 SEQ T13N 10	33,215.12	156,338.42	.24			78.16
			TOTAL	43,132.43	193,459.89	.22			96.72
		HOMESTAKE NEW ME							
			SECTION 32	67,368.54	267,627.14	.20			133.81
			TOTAL	67,368.54	267,627.14	.20			133.81
		HOMESTAKE MINING							
			BLACK JACK 1	749.26	3,371.29	.22			1.68
			BLACK JACK 2	12,765.24	60,250.33	.24			30.12
			TOTAL	13,514.52	63,621.62	.24			31.81
		HOMESTAKE SAPIN							
			SECTION 15 T14 R10	148,954.56	485,124.54	.16			242.56
			SECTION 23 14N 10W	182,771.38	703,077.03	.19			351.53
			SECTION 25 14N 10W	107,110.20	420,860.78	.20			210.43
			TOTAL	438,836.14	1,609,062.35	.18			804.53
		K S N CO INC							
			BEACON HILL MINE	3,063.18	8,377.22	.14			4.18
			FAITH SEC 29 13N 9	2,442.58	14,385.24	.29			7.19
			SEC 21 13 9 DORIS	2,667.13	10,364.64	.19			5.18
			TOTAL	8,172.89	33,127.10	.20			16.56
		KERMAC NUCLEAR F							
			SECTION 10	12,114.71	49,477.67	.20			24.73
			SEC 17 14N 9W SH	74,189.52	339,837.59	.23			169.91
			SECTION 22 14N 10W	308,397.44	1,330,132.12	.22			665.06
			SEC 24 14N 10W	218,702.15	904,699.42	.21			452.34
			SECTION 30 14N 9W	334,266.96	1,696,591.53	.25			848.29
			SEC 32 15N 11W	2,978.55	15,545.88	.26			7.77
			SEC 33 15N 11W	954.97	4,231.46	.22			2.11
			TOTAL	951,604.30	4,340,515.67	.23			2,170.25
		LANCE CORPORATIO							
			BLACK JACK 1	170,472.96	810,976.19	.24			405.48
			BLACK JACK 2	34,703.60	172,853.04	.25			86.42
			TOTAL	205,176.56	983,829.23	.24			491.91
		MID CONTINENT UR							
			BARBARA J GROUP	15,635.39	79,563.41	.25			39.78
			BARBARA J 1	7,537.63	32,035.14	.21			16.01
			SEC 11 14N 10W SH	67,662.33	280,907.82	.21			140.45

C R E PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1961

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
			POISON CANYON	17,153.94	53,845.88	.16			26.92
		TOTAL		17,153.94	53,845.88	.16			26.92
		FEBCO MINES							
			FEBCO CHILL WILLS	937.43	2,455.80	.13			1.22
		TOTAL		937.43	2,455.80	.13			1.22
		FOUR CORNERS EXP							
			DOG MINE	4,121.35	16,357.01	.20			8.17
			HOGAN MINE SEC 14	40,397.98	220,331.70	.27			110.16
		TOTAL		44,519.33	236,688.71	.27			118.34
		HAYSTACK MTN DEV							
			SECTION 13 13N 11W	886.41	2,056.46	.12			1.02
			SEC 19NWQ 13 10	4,229.82	16,015.14	.19			8.00
			SEC 25 SEQ T13N 10	14,522.25	61,837.00	.21			30.91
			SEC 31 NWQ 13N 9W	2,599.78	13,292.51	.26			6.64
		TOTAL		22,238.26	93,201.13	.21			46.60
		HOMESTAKE NEW ME							
			SECTION 32	51,841.25	191,453.62	.18			95.72
		TOTAL		51,841.25	191,453.62	.18			95.72
		HOMESTAKE MINING							
			BLACK JACK 1	39,703.02	208,216.39	.26			104.10
			BLACK JACK 2	8,295.18	35,743.68	.22			17.87
		TOTAL		47,998.20	243,960.07	.25			121.98
		HOMESTAKE SAPIN							
			BLACK JACK 1	23,364.27	97,062.86	.21			48.53
			BLACK JACK 2	2,813.34	11,686.59	.21			5.84
			DYSART SHAFT 1	11,760.96	39,205.22	.17			19.60
			DYSART 2	13,369.63	46,869.47	.18			23.43
			SECTION 15 T14 R10	62,769.46	232,946.60	.19			116.47
			SECTION 23 14N 10W	216,513.10	900,904.51	.21			450.45
			SECTION 25 14N 10W	113,049.34	450,120.75	.20			225.06
			SECTION 32 14N 9W	4,068.22	13,991.00	.17			6.99
		TOTAL		447,748.32	1,792,787.00	.20			896.39
		HYDE + COSPER							
			SEC 8 13N 9W	102.20	310.68	.15			.15
		TOTAL		102.20	310.68	.15			.15
		K S N CO INC							

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1963

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEW MEXICO									
	MCKINLEY								
		BAILEY + FIFE							
			FLAT TOP VIL HYDE4	2,268.53	9,435.55	.21			4.71
			SEC 30 WH SWQ	890.09	4,120.25	.23			2.06
			TOTAL	3,156.62	13,555.80	.21			6.77
		CALUMET + HECLA							
			MARQUEZ	104,984.61	529,470.53	.25			264.73
			TOTAL	104,984.61	529,470.53	.25			264.73
		DYSART STELLA							
			SEC 12 14N 10W	38,910.25	111,320.35	.14			55.66
			TOTAL	38,910.25	111,320.35	.14			55.66
		ENTRADA CORP							
			SEC 11 14N 10W NWQ	46,419.89	96,685.46	.10			48.34
			TOTAL	46,419.89	96,685.46	.10			48.34
		FARRIS MINES							
			BEACON HILL MINE	2,958.99	7,539.06	.13			3.76
			SECTION 4	149.19	367.01	.12			.18
			SECTION 25 13 10	4,898.53	26,717.00	.27			13.35
			TOTAL	8,006.71	34,623.07	.22			17.31
		FEBCO MINES							
			FEBCO CHILL WILLS	513.00	1,607.88	.16			.80
			TOTAL	513.00	1,607.88	.16			.80
		FOUR CORNERS EXP							
			DCG MINE	24,755.49	87,425.35	.18			43.71
			TOTAL	24,755.49	87,425.35	.18			43.71
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10	1,813.63	7,726.80	.21			3.86
			TOTAL	1,813.63	7,726.80	.21			3.86
		HOMESTAKE SAPIN							
			BLACK JACK 1	159,237.55	799,597.37	.25			399.79
			BLACK JACK 2	40,040.98	185,105.85	.23			92.55
			MINE WATER PRODUCT		5,810.00				2.90
			SECTION 15 T14 R10	43,426.27	145,609.58	.17			72.80

C R E P R O D U C T I O N R E P O R T

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1964

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U3O8	%U3O8	POUNDS V2O5	%V2O5	TONS U3O8
NEW MEXICO									
			DOG MINE	27,519.10	89,989.18	.16			44.99
			TOTAL * *	27,519.10	89,989.18	.16			44.99
		GARCIA LEE							
			BLUE PEAK	90.96	154.64	.09			.07
			TOTAL * *	90.96	154.64	.09			.07
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10	760.00	3,088.00	.20			1.54
			TOTAL * *	760.00	3,088.00	.20			1.54
		HOMESTAKE SAPIN							
			BLACK JACK 1	114,510.40	534,090.13	.23			267.04
			BLACK JACK 2	69,276.63	306,767.68	.22			153.38
			MARY 1 (DYSART 3)	35,922.50	51,902.35	.07			25.95
			MINE WATER PRODUCT		24,932.00				12.46
			SEC 10 14N 10W	2,321.88	2,879.14	.06			1.43
			SEC 15 14N 10W	14,658.51	50,306.72	.17			25.15
			SEC 23 14N 10W	170,052.80	676,630.81	.20			338.31
			SEC 25 14N 10W	167,951.50	683,817.95	.20			341.90
			SEC 32 14N 9W	4,177.80	14,898.92	.18			7.44
			TOTAL * *	578,872.02	2,346,225.70	.20			1,173.11
		KERMAC NUCLEAR F							
			IX CIRCUIT GRANTS		38,717.00				19.35
			SEC 22 14N 10W	192,351.44	767,414.11	.20			383.70
			SEC 24 14N 10W	107,174.19	444,101.23	.21			222.05
			SEC 29 14N 9W	51,960.06	242,802.58	.23			121.40
			SEC 30 14N 9W	187,614.85	1,222,595.39	.33			611.29
			SEC 33 14 9 BRANSO	54,921.12	200,453.95	.18			100.22
			TOTAL * *	594,021.66	2,916,084.26	.25			1,458.04
		KERR MC GEE OIL							
			SEC 17	28,811.00	116,127.00	.20			58.06
			SEC 20 14N 9W	59,264.00	253,767.00	.21			126.88
			TOTAL * *	88,075.00	369,894.00	.21			184.94
		MESA MINING CO							
			SEC 18 SWQ 13N 10W	2,152.82	6,452.06	.15			3.22
			TOTAL * *	2,152.82	6,452.06	.15			3.22
		MID CONTINENT UR							
			BARBARA J 2	3,569.00	14,851.00	.21			7.42
			TOTAL * *	3,569.00	14,851.00	.21			7.42

ORE PRODUCTION REPORT

BY CONTROLLER AND PROPERTY IN STATE AND COUNTY

FOR CALENDAR YEAR 1965

STATE	COUNTY	CONTROLLER	PROPERTY	TONS ORE	POUNDS U308	%U308	POUNDS V205	%V205	TONS U308
NEVADA									
	LANDER								
			TOTAL	1,993.23	7,054.71	.18			3.52
		LANDER COUNTY TOTAL		1,993.23	7,054.71	.18			3.52
		NEVADA STATE TOTAL		1,993.23	7,054.71	.18			3.52
NEW MEXICO									
	MCKINLEY								
		A + B MINING CO							
			LARGO	1,791.39	8,318.71	.23	63.00		4.15
			MIKE SMITH LEASE	1,730.29	7,478.95	.22	3,352.00	.10	3.73
			TOTAL	3,521.68	15,797.66	.22	3,415.00	.05	7.89
		BAILEY + FIFE							
			FLAT TOP VIL HYDE4	2,938.86	10,059.62	.17			5.02
			FLAT TOP 3	473.00	1,453.87	.15			.72
			SEC 30 WH SWQ	335.47	1,214.41	.18			.60
			TOTAL	3,747.35	12,727.90	.17			6.36
		FARRIS MINES							
			SECTION 25 13 10	14,150.50	56,710.62	.20			28.35
			TOTAL	14,150.50	56,710.62	.20			28.35
		FOUR CORNERS EXP							
			DOG MINE	27,863.65	91,433.10	.16			45.71
			TOTAL	27,863.65	91,433.10	.16			45.71
		HAYSTACK MT DEVE							
			SEC 19NWQ 13 10	616.32	2,526.80	.21			1.26
			SEC 23 R10W T13N	1,152.07	7,381.04	.32			3.69
			TOTAL	1,768.39	9,907.84	.28			4.95
		HOMESTAKE SAPIN							

Attachment 3

EPA Administrative Order 91-16
July 1991

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX

IN THE MATTER OF: Approximately 640 Acres of Land Located in Section 19, Township 13N, Range 10W of the Bluewater USGS Quadrangle (A Portion of the Bluewater Uranium Mining Sites) Respondents: The Cerrillos Land Company, the Santa Fe Pacific Railroad Company, and the Atchison, Topeka & Santa Fe Railway Company	Order No. 91-16 ADMINISTRATIVE ORDER PURSUANT TO SECTION 106 OF THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT OF 1980 as amended, 42 U.S.C. Section 9606(a)

I. PREAMBLE

This Administrative Order (Order) is issued on this date to the above-referenced Respondents, pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. Section 9606(a), as amended by the Superfund Amendments and Reauthorization Act of 1986, Pub. L. 99-499 (CERCLA), delegated to the Administrator of the United States Environmental Protection Agency (U.S. EPA) by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, further delegated to the EPA Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-B, and further redelegated to the Director, Hazardous Waste Management Division, by Region IX Delegations 1290.41 and 1290.42.

The State of New Mexico and the Navajo Nation have been notified of the issuance of this Order as required by Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a).

This Order requires the Respondents to undertake and complete removal activities to abate an imminent and substantial endangerment to the public health or welfare or the environment that may be presented by the actual or threatened release of hazardous substances from the above-referenced Site.

II. FINDINGS OF FACT

Based on available information, including the Administrative Record established in this matter, the U.S. EPA hereby finds:

A. Site Description/Location

The Bluewater Uranium Mining Sites consist of two nearby abandoned mining areas, the Brown-Vandever-Nanabah Mining Sites and the Navajo Desiderio Mine, which are located in the central portion of western New Mexico. The Brown-Vandever-Nanabah Mining Sites are located on four parcels of land, which include two Indian Allotment parcels, one Federal parcel administered by the Department of Energy, and one privately owned parcel. All of these parcels lie within the Bluewater U.S. Geological Survey (USGS) Quadrangle.

The privately owned parcel of land which constitutes one of the four parcels at the Brown-Vandever-Nanabah Mining Sites, as indicated above, is the subject of this Administrative Order issued by the U.S. EPA. For ease of reference, the subject parcel will hereinafter be referred to as "the Site" or "the Facility."

The Site is located at the foot of Haystack Butte in Section 19, Township 13N, Range 10W of the Bluewater Quadrangle, approx-

imately five miles west of Prewitt, New Mexico and 15 miles north of Grants, New Mexico. The elevation of the Site varies from 6900 to 7100 feet above sea level. Haystack Butte, which lies approximately 1/2 mile to the North of the Site, peaks at 7833 feet.

The climate at the Site is semi-arid, with an average annual precipitation of approximately 12 inches, occurring mostly in July and August. The average annual wind velocity is 10 mph.

No surface water exists on or around the Site. However, small arroyos cut the area with general drainage to the southeast. Groundwater aquifers lie far below any of the previously mined areas at the Site. There is no evidence that the groundwater has been affected, to date, by hazardous substances at the Site.

Geology locally consists of exposures of Jurassic Todilto limestone and Entrada sandstone at the northern border of the Site, and Basaltic Malpaies to the southeast. Vegetation consists of sparse grassland, bounded approximately 1/2 mile to the north of the Site by pinyon-juniper woodlands. Wildlife species in the area are restricted to birds, reptiles, and small mammals characteristic of the pinyon-juniper and grassland habitats.

In the past, the land at the Site was used primarily for rangeland grazing and uranium mining. Reports indicate that mining operations at the Brown-Vandever-Nanabah Mining Sites were ceased in approximately 1981. Since that time, the land has been utilized primarily for the grazing of sheep and other animals. However, as a result of the previous mining operations at the Site, the topography of the land is still scarred by several

large abandoned uranium mine pits. In addition, uranium mine waste, overburden, and piles of protore (low grade uranium ore) remain present on the surface of the land at this time.

B. Site History and Respondents

1. As of 1950, when uranium was first discovered at the Site, the mineral rights to the Site (Section 19, Township 13N, Range 10W) were held and controlled by the Santa Fe Pacific Railroad Company (SFPR).

2. SFPR owned the mineral rights to the Site for the period from 1951 to the the early 1980's. During this period of time, uranium mining operations were conducted at the Site, as specified in paragraphs 3, 6, 7, 8, 10, and 13 below.

3. From November 21, 1950, to September 30, 1952, SFPR conducted drilling, sampling, test pitting and other mining operations at the Site.

4. According to the Mineral Leasing History and Corporate Chronology attached to a June 18, 1991 letter to EPA from Mr. Tim Leftwich, the Director of Environmental Quality for both the Cerrillos Land Company (CLC) and the Santa Fe Pacific Minerals Corporation (SFPM), the Haystack Mountain Development Company was incorporated on October 15, 1951, as a subsidiary of the Atchison, Topeka & Santa Fe Railway.

5. From September 30, 1952 to November 30, 1961, SFPR formally leased the mineral rights to the Site to HMDC.

6. From September 30, 1952 to November 30, 1961, HMDC conducted mining operations at the Site pursuant to the above-referenced lease.

7. On April 19, 1960, SFPR entered into a separate contract with HMDC for construction work and other work, including the production of uranium ore, at the Site. This contract was terminated on December 1, 1961.

8. On December 1, 1961, SFPR entered into a similar contract with an individual named Henri T. Dole, for construction work and other work, including mining operations, at the Site. This contract remained in effect through December 1, 1967. Information made available to EPA indicates that Henri T. Dole may now be deceased.

9. From April 15, 1975 to February 1985, SFPR leased the mineral rights to several portions of the Site to an individual named George Warnock. In this lease agreement, SFPR acknowledged that:

a) SFPR was the former owner of the land (including surface rights) at the Site; and

b) Although SFPR had previously sold and conveyed its interest in the surface rights to the Site, the company had retained its property interest in the oil, gas, and mineral rights which were associated with that land.

10. Pursuant to this lease of Site mineral rights, Mr. Warnock conducted uranium exploration and mining activities at the Site, subject to the payment of both rent and royalties to SFPR, from April 15, 1975 to May 1977.

11. In an agreement on May 5, 1977, Mr. Warnock assigned his lease of Site mineral rights to the Todilto Exploration and Development Corporation (TEDC). The Lessor of the Site mineral rights, SFPR, consented to the assignment of the lease to TEDC.

12. As evidenced by the signatures on the Assignment of Lease document, George Warnock also served as President of TEDC, and his wife Dorothy served as the Secretary of that company.

13. Pursuant to the assignment of the above-referenced lease, TEDC conducted mining operations on a portion of the Site from May 1977 until approximately 1981.

14. In 1981, all ongoing mining operations at the Site were ceased.

15. On April 27, 1987, HMDC was merged into the Atchison, Topeka and Santa Fe Railway Company.

16. According to a July 1, 1991 letter from Mr. Tim Leftwich, the Director of Environmental Quality for the Cerrillos Land Company (CLC) to EPA Region IX, CLC is "the current owner of the mineral estate" for the Site.

17. As further indicated in the Corporate Chronology attached to the June 18, 1991 letter from Mr. Leftwich to EPA, CLC was incorporated on March 21, 1983, as a subsidiary of the newly incorporated Santa Fe Pacific Minerals Corporation (SFMC). The Santa Fe Pacific Minerals Corporation itself was incorporated on March 14, 1983, as a subsidiary of Santa Fe Industries, Inc.

18. As indicated in the Mineral Take Off attachment to the June 18, 1991 letter from Mr. Leftwich to EPA, the Cerrillos Land Company acquired its present interest in the mineral rights to the Site from SFPR through special warranty deed conveyances in September 1983, and in July and October 1986.

19. As indicated in the Current Pertinent Structure attachment to the June 18, 1991 letter from Mr. Leftwich to EPA, and confirmed by Wayne Jarke, the General Counsel for the Santa Fe

Pacific Minerals Corporation, in a telephone conversation with EPA representative Linda P. Wandres on July 26, 1991, the Atchison, Topeka and Santa Fe Railway Company, the Santa Fe Pacific Railroad Company, and the Santa Fe Pacific Minerals Corporation are now sister subsidiaries of Santa Fe Pacific Properties, Inc. Santa Fe Pacific Properties, Inc. is itself a subsidiary of the Santa Fe Pacific Corporation.

C. **Site Characteristics**

Several families live and work near the Site. Approximately forty people, including children, live within one quarter mile of the Site. As stated above, the Haystack Butte area, including Section 19, is utilized primarily as grazing land for local sheep herders. At the present time, there are no restrictions or barriers to prevent the local population or livestock from gaining access to the abandoned mine areas and mining wastes which remain at the Site. Throughout the year, local residents, sheep, and goats roam freely within the abandoned mine areas. In addition, the Agency for Toxic Substances and Disease Registry (ATSDR) has reported that local children occasionally play on and around the abandoned mine pits and the piles of mine waste at the Site.

D. **Incident/Release Characteristics**

On October 3, 1990, the Emergency Response Section (ERS) of the U.S. EPA was notified by the ATSDR of potential health hazards which the Agency had determined may be associated with the abandoned uranium mines at the Brown-Vandever-Nanabah and Desiderio Mining Sites in the Bluewater USGS quadrangle. Specifically, ATSDR concluded that the Bluewater Mining Sites may pose a significant health hazard to the local population because

of the presence of radioactive mine waste and protore on and about the Sites, physical hazards at the Sites, and the potential for heavy metal contamination in the vicinity of the abandoned mines. As a result of its investigation, ATSDR issued a Public Health Advisory concerning the Bluewater Sites (including the Site subject to this Order) pursuant to Section 104(i)(6)(H) of CERCLA.

EPA Region IX's ERS was tasked to assess the present radiological and geochemical conditions at the Bluewater Sites, to determine whether an emergency response action was warranted to control the actual or threatened release of hazardous substances at the Sites. On November 15-16, 1990, the ERS staff (assisted by members of the EPA Office of Air and Radiation) conducted a field gamma survey and collected water and soil samples on and about the Brown-Vandever-Nanabah and Desiderio Mining Sites, including the Site which is the subject of this Order.

In order to assess the conditions present at the Site subject to this Order, the ERS staff (using standard radiation detection equipment [Ludlum 19]), first obtained background radiation measurements at a distance of 2.5 miles, 1.0 mile and approximately 0.5 mile from the Site. Thereafter, the ERS staff took radiation readings at several sampling locations within the immediate vicinity of the Site (See Attachment A, Preliminary Data). Measurements were taken at both ground level and at waist level. Waist level measurements are indicative of human exposure levels, whereas the contact measurements taken at ground level suggest the emission rate of the radioactive materials from the soil.

Ground level background readings obtained by the EPA staff ranged from 11 microroentgens per hour (uR/hr) to 15 uR/hr, while waist level background readings ranged from 11 uR/hr to 13 uR/hr. Within the immediate vicinity of the Site, the net waist level (background subtracted) radiation levels ranged from 20 uR/hr to over 750 uR/hr. On ground contact, the maximum on-Site radiation level was recorded at 1,225 uR/hr. Elevated concentrations of radium (Ra-226/228) and uranium isotopes (U-223/234/235/238) were also detected in soils located on-Site. The maximum levels detected for radioisotopes in surface soils at the Site (within the top 15 centimeters of soil) were recorded for radium, which was measured in excess of 260 picocuries per gram of soil (pCi/g), and for uranium species, which were measured at more than 300 pCi/g. Soil samples which were analyzed for heavy metal contamination did not reveal any significant amount of contamination.

E. <u>Threats to Public Health and Welfare</u>

1. Removal Cleanup Standard

Radiation is a known carcinogen, mutagen and teratogen. Exposure to elevated gamma radiation is known to cause cancer, cataracts, and shorten the life span of affected individuals. As indicated above, elevated radionuclide levels are present in both the soil and waste materials found at the Site. These radionuclides have been found to emit radiation at levels which may present a danger to individuals in the vicinity of the Site. Uranium and several of its decay daughters are alpha emitters. The inhalation of radionuclides that are alpha emitters exposes an affected individual's internal organs to damaging alpha par-

ticles. Once ingested, alpha particles become trapped within the body, and can thereby cause severe organ damage as well as certain genetic defects.

The National Council on Radiation Protection and Measurements (NCRP) Report 91 (1987), "Recommendations on Limits for Exposure to Ionizing Radiation," recommends the adoption of a limit for continuous or frequent exposure to radiation, at a 100 mrem/yr effective dose equivalent (EDE) from all radiation sources (including external as well as internal sources). The NCRP report also recommends that a limit of 500 mrem/yr be established for infrequent or "short term" exposure. In accordance with the above-referenced NCRP Guidelines, EPA's Office of Air and Radiation (OAR) has concurred with Region IX's Action Memorandum for the Bluewater Sites, which recommends that a limit of <100 mrem/yr of excess gamma radiation be adopted as a standard in this case, to ensure that the affected population is not exposed to radiation levels in excess of the 500 mrem/yr effective dose equivalent from all sources.

For the purpose of the response action to be conducted at the Site, EPA has estimated that the population in question (on the average) spends two (2) hours per day in areas which have been affected by the mining operations at the Site, for approximately 300 days out of each year. Based on this estimate, it appears that the population and livestock in the immediate vicinity of the Site which are being exposed to gamma radiation levels of 180 uR/hr or greater (165 uR/hr above background) are receiving radiation exposure in excess of the levels recommended by Region IX and the EPA Office of Air and Radiation.

The risk level at the Site has been calculated using the following formula:

(180 uR/hr - 15 uR/hr) * 2 hr * 300 days/yr = 99,000 uR/yr
99,000 uR/yr = 99 mR/yr = 99 mrem/yr

F. Threats to the Environment

In addition to the threat which the Site currently poses to human health, the elevated emissions of gamma radiation from the radionuclides which are present in the soil and other materials at the Site may adversely effect the local biota and wildlife. Moreover, since the land is being utilized primarily for grazing at the present time, the radionuclides may be entering the food chain, as the grazing livestock ingest the contaminated biota. Over a period of time, this food chain link may also have deleterious consequences for the individuals who frequently eat animals which have grazed in the vicinity of the Site.

III. CONCLUSIONS OF LAW

Based on the foregoing Findings of Fact, the U.S. EPA has concluded as follows:

A. The portion of the Bluewater Uranium Mining Sites which is the subject of this Order (the "Site"), which is located in Section 19, Township 13N, Range 10W of the Bluewater Quadrangle, is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. Section 9601(9).

B. Each named Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. Section 9601(21).

C. The Cerrillos Land Company is the present "owner" of a property interest in the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. Section 9601(20).

D. The Santa Fe Pacific Railroad Company is an "owner" at the time of disposal of a property interest in the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. Section 9601(20).

E. The Atchison, Topeka & Santa Fe Railway Company is a parent and successor corporation to the Haystack Mountain Development Company, and is therefore an "operator" at the time of disposal of the Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. Section 9601(20).

F. The above-named Respondents are therefore liable persons with respect to the Site, pursuant to Section 107(a) of CERCLA, 42 U.S.C. Section 9607(a).

G. Radionuclides are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. Section 9601(14), and Section 302.4 of the National Contingency Plan (NCP), 40 CFR Part 300.

H. The presence of elevated radionuclide concentrations at the above-referenced Site, and the potential for those substances to migrate, constitutes an actual or threatened "release" of hazardous substances into the environment, as defined by Section 101(22) of CERCLA, 42 U.S.C. Section 9601(22).

IV. DETERMINATIONS

Based on the Findings of Fact and Conclusions of Law stated above, the Director, Hazardous Waste Management Division, EPA Region IX, has made the following determinations:

A. The actual or threatened release of hazardous substances from the Facility subject to this Order may present an imminent and substantial endangerment to the public health or welfare or the environment.

B. Specifically, the conditions present at the Facility constitute a threat to public health or welfare or the environment based upon consideration of the factors set forth in the National Contingency Plan, at 40 CFR Section 300.415(b). These factors include, but are not limited to, the following:

1. Actual or potential exposure to hazardous substances by nearby populations, animals, or food chain:

As indicated above, approximately forty people, including children, reside within an approximate one half mile radius of the Site. If immediate action is not taken to control the release of hazardous substances at the Site, the local population may be exposed to dangerous doses of gamma radiation and elevated concentrations of radionuclides. As indicated in Section II.F.1 of this Order, constant or frequent exposure to elevated gamma radiation emitted from radionuclides is known to cause cancer, life span shortening and cataracts in affected individuals.

2. High levels of hazardous substances in soils largely at or near the surface that may migrate:

EPA has determined that the soils which are present within the boundaries of the Site contain elevated concentrations of radionuclides. These hazardous substances may migrate from the surface soils at the Site as a result of high winds in the immediate vicinity. The inhalation of airborne radionuclides exposes the internal organs of exposed persons to damaging alpha particles. Uranium and several of its decay daughters are alpha radiation emitters. Once ingested, an alpha particle becomes trapped within the body and can thereby cause severe organ damage as well as certain types of genetic defects. Radionuclides present in surface soils may also migrate as a result of their exposure to flash flood waters and surface runoff. Finally, increased radiation emissions may result from elevated radionuclide concentrations at the Site. Such radiation is a known carcinogen, mutagen and teratogen.

3. Weather conditions that may cause hazardous substances to migrate or be released:

Although the area in the vicinity of the Site is relatively dry during the majority of the year, the Bluewater District is subject to severe seasonal thunderstorms, high winds, and flash flooding. As a result, the mine wastes which remain present on the surface of the land are slowly being broken down and transported, by both alluvial and fluvial forces.

C. In order to prevent or mitigate immediate and significant risk of harm to the public health, welfare and the environment, it is necessary that actions be taken immediately to contain and prevent the release and potential release of hazardous substances from the Site.

D. The actions required by this Order, if properly performed, are consistent with CERCLA and the National Contingency Plan (NCP), 40 CFR Part 300, and are necessary and appropriate to protect the public health or welfare or the environment from the release of hazardous substances from the Site.

V. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, and Determinations, and pursuant to Section 106(a) of CERCLA, 42 U.S.C. Section 9606(a), it is hereby Ordered that Respondents undertake the following actions with regard to the Site, under the direction of EPA's On-Scene Coordinator:

A. Within twenty-one (21) calendar days after the effective date of this Order, the Respondents shall submit in writing, for EPA review and approval, a Site Stabilization Plan and Schedule (Work Plan). The Work Plan shall provide a concise description of the removal activities which are to be conducted pursuant to this Order, as set forth below. Pursuant to the Work Plan, the Ordered activities shall be implemented and completed in accordance with the time frames specified in this Section:

1. Within thirty-five (35) calendar days after the effective date of this Order, the Respondents shall conduct a field gamma survey to define and delineate all areas within the Site which exceed 180 microroentgens an hour (uR/hr) (165 uR/hr above background) at ground level. The Work Plan shall contain specific information on how the gamma survey will be conducted, grid specification, the type of instruments planned to be utilized, and the

qualifications of the surveyors. All sampling and analysis shall be consistent with the "Removal Program Quality Assurance/Quality Control Interim Guidance: Sampling, QA/QC Plan and Data Validation," EPA OSWER Directive 9360.4-01, dated February 2, 1989.

2. Within sixty (60) calendar days after the effective date of this Order, the Respondents shall effectively reduce radiation emissions from all mine waste piles and areas where mining has exposed the uranium rich limestone, where recorded gamma emissions have been found to exceed 180 uR/hr at ground level (165 uR/hr above background). The radiation emissions from these piles and mined surfaces shall be reduced to a level below 180 uR/hr. The proposed response actions to reduce these radiation emissions must be able to withstand erosion and chemical weathering (revegetation or the equivalent). The Work Plan shall provide adequate information and details on how the gamma radiation levels will be reduced by the proposed action, on specific site operation procedures, on the type of equipment which the Respondents plan to utilize during the proposed action, and on the qualifications of the personnel to be employed or otherwise retained by the Respondents to perform the Ordered activities.

3. Within sixty (60) calendar days after the effective date of this Order, the Respondents shall post signs in English, Spanish and Navajo warning the local residents of the potential radiological hazards associated with the Site.

The Work Plan submitted by the Respondents shall be reviewed by the U.S. EPA, which may approve, disapprove, require revisions, or modify the Work Plan. If EPA provides comments to the Respondents on the proposed Work Plan, the Respondents shall incorporate all of EPA's comments and resubmit the plan to EPA within seven (7) calendar days after receiving any such comments.

Once EPA has approved the Work Plan, the Respondents shall promptly commence implementation of the Plan as approved by EPA. Failure of the Respondents to promptly and properly implement all aspects of the Work Plan as approved shall be deemed to be a violation of the terms of this Order.

The EPA approved Work Plan shall be deemed to be incorporated into this Order by reference, and thus, shall be fully enforceable under the terms of this Order.

The Work Plan and other documents submitted by the Respondents shall demonstrate that the Respondents can properly and effectively conduct the response actions required by this Order.

B. Within twenty-one (21) calendar days after the effective date of this Order, the Respondents shall submit in writing, for EPA review and approval, a Site Health and Safety Plan. The Site Health and Safety Plan shall include necessary provisions to protect the health and safety of Site workers and neighboring residents, and shall be approved by a qualified Health Physicist. The Site Health and Safety Plan shall be prepared in accordance with EPA's Standard Operating Safety Guide, dated November 1984, and updated July 1988, and with the Occupational Safety and Health Administration (OSHA) regulations contained in 29 CFR Part 120, which are applicable to Hazardous Waste Operations and Emergency Response Actions.

If EPA provides comments to the Respondents on the Site Health and Safety Plan, the Respondents shall incorporate all of EPA's comments and resubmit the plan to EPA within seven (7) calendar days of receiving any such comments.

C. Within thirty-four (34) calendar days after the effective date of this Order, the Respondents shall submit in writing, for EPA review and approval, a Post-Response Sampling Plan to ensure that all gamma radiation emission levels recorded within the boundaries of the Site following the completion of this removal

action are below the above-referenced limit of 180 uR/hr (165 uR/hr above background).

D. Within five (5) calendar days following the completion of the initial gamma radiation survey at the Site, the Respondents shall submit to EPA for review and approval copies of the field data which the Respondents have obtained during their initial survey of Site conditions, including a map delineating the survey points, documentation on instrument calibrations, and a summary of the procedures utilized by the Respondents and the findings which they obtained during the initial survey. After EPA has approved the results of the initial gamma survey, the Respondents shall proceed in implementing the remaining tasks specified in the approved Work Plan.

E. During the implementation of the Work Plan and the Sampling Plan, the Respondents shall provide written weekly summary reports to the EPA On-Scene Coordinator. These weekly reports shall contain a summary of the previous week's activities and planned upcoming events.

F. The Respondents shall provide notice to EPA at least forty-eight (48) hours prior to performance of any on-Site work.

G. At the conclusion of the Post-Response Sampling activities, the Respondents shall prepare a final report summarizing the work which they have conducted at the Site pursuant to this Order. The final report shall contain, at a minimum: identification of the Facility; a description of the locations and types of hazardous substances encountered at the Facility upon the initiation of work performed under this Order; a chronology and description of the actions performed (including both the

organization and implementation of response activities); a listing of the resources committed to perform the work under this Order (including financial, personnel, mechanical and technological resources); identification of all items that affected the actions performed under the Order, and a discussion of how all problems were resolved; and a presentation of the analytical results of all sampling and analyses performed (including all materials related to the Post-Response gamma survey), and accompanying appendices containing all relevant paperwork accrued or used during the action (e.g., Site maps, instrument calibration data, invoices, bills, contracts, permits, and Site personnel information).

In addition, the final report shall include an affidavit from a person who supervised or directed the preparation of that report. The affidavit shall certify under penalty of law that based on the affiant's personal knowledge and appropriate inquiries of all other persons involved in the preparation of the report, the information submitted is true, accurate, and complete to the best of the affiant's knowledge and belief.

The final report shall be submitted to EPA no later than fourteen (14) calendar days following the termination of the response action at the Site.

H. The Respondents shall retain a contractor which is qualified to undertake and complete the requirements of this Order, and shall notify the U.S. EPA of the name of such contractor, within twenty-one (21) calendar days after the effective date of this Order (within the timeframe specified above for submittal of the Work Plan for Site activities). EPA retains the

right to disapprove of any, or all, of the contractors and/or subcontractors which the Respondents may seek to retain. In the event that EPA disapproves of a selected contractor, the Respondents shall retain a different contractor to perform the Ordered work within seven (7) calendar days following EPA's disapproval of the Respondents' initial contractor selection.

I. Any materials containing hazardous substances, pollutants, or contaminants which are removed from the Site pursuant to actions required under this Order shall be disposed of or treated at a facility approved by the EPA On-Scene Coordinator, and in accordance with the requirements of the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. Section 9601, et seq., as amended, the U.S. EPA Revised Off-Site Policy, and all other applicable Federal, State, and local requirements.

J. The Respondents shall designate a Project Coordinator for the work to be performed at the Site. To the greatest extent possible, the Project Coordinator shall be present on-Site, or be otherwise readily available, during the performance of response activities at the Site. The U.S. EPA has designated Robert E. Bornstein as its On-Scene Coordinator (OSC) for the Site. All relevant correspondence, reports, and documents should be submitted to the EPA On-Scene Coordinator at the following address:

Robert E. Bornstein, OSC
Emergency Response Section (H-8-3)
U.S. EPA
Region IX
75 Hawthorne Street
San Francisco, CA 94105

The On-Scene Coordinator and the Respondents' Project Coordinator shall be responsible for overseeing the implementation of this

Order. To the maximum extent possible, and unless otherwise specified in this Order, communication between the Respondents and the U.S. EPA, and all documents, reports, approvals, and correspondence concerning the response activities to be performed pursuant to this Order, shall be directed through the EPA On-Scene Coordinator and the Respondents' Project Coordinator.

K. The U.S. EPA and the Respondents shall each have the right to change their designated Coordinator for the response activities conducted at the Site. The U.S. EPA shall notify the Respondents, and the Respondents shall notify EPA, as early as possible before such a change is made. However, in no event shall less than 24 hours' notice be provided for such a change. While verbal notification may be provided initially for a change in the designated Coordinator under this provision, such notification shall be confirmed promptly in writing.

L. The U.S. EPA On-Scene Coordinator shall have the authority vested in an On-Scene Coordinator by the NCP, 40 CFR Part 300, as amended, including the authority to halt, conduct, or direct any work required by this Order, and to direct any other response action to be undertaken by the U.S. EPA or the Respondents at the Facility subject to this Order. All instructions given by the EPA On-Scene Coordinator or his designated alternate shall be binding upon the Respondents as long as those instructions are not clearly inconsistent with the provisions of the National Contingency Plan.

M. No extensions shall be granted to the timeframes set forth for the performance of specific response actions pursuant to this Order without sufficient cause. All such extensions must

be requested by the Respondents in writing, and shall not be deemed to be accepted unless EPA has approved such an extension in writing.

N. To the extent that the Facility subject to this Order, or other nearby areas where work must be performed pursuant to this Order, is owned, leased, or possessed by person(s) other than the Respondents, it is the responsibility of the Respondents to obtain access to and use of any such areas, in order to carry out the terms of this Order. Accordingly, it is the responsibility of the Respondents to obtain all necessary access agreements to enable them to perform the Ordered work at the Site. In the event that the Respondents are unable to obtain access to portions of the Site or surrounding lands, despite having used their best efforts to do so, the Respondents shall immediately notify the U.S. EPA.

O. The Respondents shall provide U.S. EPA employees, contractors, agents, and other representatives with unrestricted access to the Facility at all reasonable times, and shall permit all such persons to be present on and to move freely in the area subject to this Order, to conduct inspections on the subject land, including taking photographs and videotapes of the Facility, to perform necessary cleanup and site stabilization work, to take samples at the Site, to monitor the work performed by Respondents pursuant to this Order, and to conduct other such activities as the U.S. EPA determines are necessary at the Site. Nothing in this Order shall limit any access rights that EPA or other governmental agencies may have pursuant to law.

P. Nothing contained herein shall be construed to prevent the U.S. EPA from seeking legal or equitable relief to enforce the terms of this Order, or from taking other legal or equitable action as it deems necessary and appropriate, or from requiring the Respondents in the future to perform additional response activities pursuant to CERCLA, 42 U.S.C. Section 9601, et seq., or any other applicable law.

Q. If any provision of this Order is deemed to be invalid or unenforceable, the balance of the Order shall remain in full force and effect.

VI. COMPLIANCE WITH OTHER LAWS

The Respondents shall comply with all applicable federal, state and local laws and regulations in carrying out the terms of this Order. As indicated above, all hazardous substances removed from the Site must be handled in accordance with the Resource Conservation and Recovery Act of 1976, 42 U.S.C. Section 6921, et seq., the regulations promulgated under that Act, and Section 121(d)(3) of CERCLA, 42 U.S.C. Section 9621(d)(3).

VII. ENDANGERMENT DURING IMPLEMENTATION

The Director, Hazardous Waste Management Division, EPA Region 9, may determine that acts or circumstances (whether related to or unrelated to this Order) may endanger human health, welfare or the environment, and as a result of this determination, may order the Respondents to stop further implementation of this Order until the endangerment is abated.

VIII. GOVERNMENT NOT LIABLE

The United States Government and its employees and other representatives shall not be liable for any injuries or damages

to persons or property resulting from the acts or omissions of the Respondents, their employees, contractors, or other representatives caused by carrying out this Order. For the purposes of this Order, the United States Government is not a party to any contract with the Respondents.

VIX. PENALTIES FOR NONCOMPLIANCE

A. The Respondents are advised that pursuant to Section 106(b) of CERCLA, 42 U.S.C. Section 9606(b), a willful violation or failure or refusal to comply with this Order may subject the Respondents to a civil penalty of up to $25,000 per day for each day in which the violation occurs or failure to comply continues. Failure to comply with this Order, or any portion thereof, without sufficient cause may also subject the Respondents to liability for punitive damages of up to three times the total cost incurred by the United States as a result of the Respondents' failure to take proper response action with regard to the Site, pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. Section 9607(c)(3).

B. EPA may take over the response action at any time if EPA determines that the Respondents are not taking appropriate action in accordance with this Order. EPA may order additional actions as it deems necessary in order to protect the public health, welfare, or the environment from the release of hazardous substances at the Site. In this regard, the Respondents are advised that they may be found to be liable under Section 107(a) of CERCLA, 42 U.S.C. Section 9607(a), for any and all costs incurred by the government in performing such additional response actions at the Site.

X. OPPORTUNITY TO CONFER

With respect to the actions required above, the Respondents may, within seven (7) calendar days following the issuance of this Order, request a conference with the U.S. EPA to discuss the provisions of the Order. Any such conference shall be held within fourteen (14) calendar days from the date of the Respondents' request, unless the timeframe for the conference has been extended by mutual agreement of the parties. At any conference held pursuant to the Respondents' request, the Respondents may appear in person, or be represented by an attorney or other representative. If any Respondent desires such a conference, the Respondent shall contact Linda P. Wandres, Assistant Regional Counsel, at (415) 744-1359, within the timeframe stated above.

If such a conference is held, Respondents may present any evidence, arguments, comments, or objections which they may have regarding this Order, its applicability to the Respondents, any factual determinations upon which the Order is based, the appropriateness of any action which the Respondents are being ordered to perform, or any other relevant and material issue regarding the Order. Any such evidence, arguments, comments, or objections should be reduced to writing and submitted to the U.S. EPA within seven (7) calendar days following the scheduled conference.

XI. PARTIES BOUND

The provisions of this Order and the directions of the U.S. EPA On-Scene Coordinator shall apply to and are binding upon the Respondents, their officers, directors, agents, employees, contractors, successors, and assigns.

XII. NOTICE OF INTENTION TO COMPLY

On or before three (3) calendar days of receipt of this Order, the Respondents shall provide notice, verbally or in writing, to U.S. EPA stating their intention to comply with all of the terms set forth in this Order. Verbal notification must be followed in writing within two (2) calendar days. Such written notice shall be provided to the Director, Hazardous Waste Management Division, at the following address:

Jeff Zelikson, Director
Hazardous Waste Management Division (H-1)
United States Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

In the event that any Respondent fails to provide such notice, that Respondent shall be deemed not to have complies with the terms of this Order.

XIII. RECORD RETENTION

The Respondents shall retain copies of all records and files which relate to hazardous substances found on the Site for six (6) years following the completion of the activities required by this Order. The Respondents shall further make such records and files available to the U.S. EPA prior to the termination of the removal activities to be performed pursuant to this Order.

XIV. ACCESS TO ADMINISTRATIVE RECORD

The Administrative Record which has been complied by EPA in connection with this matter, and which supports the selection of the response action, is available for review on normal business days between the hours of 9:00 a.m. and 5:00 p.m., in the Office of Regional Counsel, United States Environmental Protection

Agency, Region IX, 75 Hawthorne Street, San Francisco, California 94105. In addition, a copy of the Administrative Record will be made available within sixty (60) calendar days following the initiation of response activities pursuant to this Order in a designated public repository within the vicinity of the Site. Please contact Linda P. Wandres, the EPA Assistant Regional Counsel assigned to this matter, at (415)-744-1359 if you wish to review the Administrative Record in this case. A preliminary index of the Administrative Record is attached to this Order (Attachment B) for your review.

XV. EFFECTIVE DATE

Notwithstanding any conferences requested pursuant to the provisions of this Order, this Order shall be effective upon the date of execution by the Director, Hazardous Waste Management Division, EPA Region IX, and all times for performance shall be calculated from that date. If a conference is requested by the Respondents, the Order shall be effective on the seventh (7th) calendar day following the date of the conference, unless EPA has agreed in writing to modify the effective date of the Order.

IT IS ORDERED on this 29th day of July 1991.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

By: _____
Jeff Zelikson, Director
Hazardous Waste Management Division
United States Environmental Protection Agency
Region IX

Contacts:

Robert E. Bornstein
On-Scene Coordinator
Emergency Response Section (H-8-3)
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-2298

William J. Weis III
Investigations and Enforcement
Emergency Response Section (H-8-3)
United States Environmental Protection Agency
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75 Hawthorne Street
San Francisco, CA 94105
(415) 744-2297

Linda P. Wandres
Assistant Regional Counsel
Office of Regional Counsel (RC-3)
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105
(415) 744-1359

ATTACHMENT A
GAMMA RADIATION SURVEY DATA
BROWN-VANDEVER MINE SITE, NAVAJO NATION
SECTION 19
NOVEMBER 14-15, 1990

Operator - Collen Petullo Recorder - Robert Bornstein

Instrument	ID#	Calibration date	Calibration Source
1 Ludlum 19	452663	11-08-90	Ra-226
2 Bicron	825481	10-15-90	Cs-137
3 Ludlum 12 Pancake	140830	11-08-90	Pu-239,Sr-90

Date 11/14/90 SECTION 19

Inst.	Time	Station	Ground	Waist	Comments
1 3	0900 0903	Background1	11 uR/hr 100 cpm	11 uR/hr 100 cpm	2.5 mi from site.
1 3	0908 0910	Background2	11 uR/hr 100 cpm	11 uR/hr 100 cpm	1.0 mi from site.
1	0930	Brown Home	13 uR/hr	14 uR/hr	stage area
1 2	1000 1001	Station 1	35 uR/hr 25 urem/hr	36 uR/hr 25 urem/hr	Center of dirt road
1 2	1003 1004	Station 2	130 uR/hr 70 urem/hr	135 uR/hr 60 urem/hr	near tree
1 2	1007 1008	Station 3	90 uR/hr 50 urem/hr	N/A N/A	contact on ground
1 2	1010 1011	Station 4	115 uR/hr* 75 urem/hr	100 uR/hr # 50 urem/hr	
1 2	1015 1017	Station 5	130 uR/hr 85 urem/hr	145 uR/hr 60 urem/hr	
1 2	1019 1020	Station 6	1200 uR/hr 800 urem/hr	800 uR/hr 400 urem/hr	In pit zone
1 2	1028 1033	Station 7	40 uR/hr 20 urem/hr	44 uR/hr 25 urem/hr	Away from pit area
1 2	1040 1044	Station 8	150 uR/hr 90 urem/hr	140 uR/hr 72 urem/hr	

Table 1. (Continued)

Inst.	Time	Station	Ground	Waist	Comments
1	1055	Station 9	190 uR/hr	170 uR/hr	
2	1057		120 urem/hr	90 urem/hr	
1	1105	Station 10	1250 uR/hr	800 uR/hr	open area
2	1108		750 urem/hr	350 urem/hr	
1	1113	Station 11	400 uR/hr	200 uR/hr	
2	1115		300 urem/hr	150 urem/hr	
1	1118	Station 12	600 uR/hr	500 uR/hr	
2	1120		500 urem/hr	300 urem/hr	
1	1122	Station 13	500 uR/hr	500 uR/hr	
2	1124		250 urem/hr	400 urem/hr	
1	1127	Station 14	600 uR/hr	700 uR/hr	
2	1128		300 urem/hr	300 urem/hr	
1	1134	Station 15	230 uR/hr	280 uR/hr	
2	1136		150 urem/hr	150 urem/hr	
1	1140	Station 16	700 uR/hr	600 uR/hr	
2	1141		300 urem/hr	250 urem/hr	
1	1150	Station 17	80 uR/hr	120 uR/hr	
2	1151		40 urem/hr	35 urem/hr	
1	1155	Station 18	90 uR/hr	65 uR/hr	
2	1156		50 urem/hr	35 urem/hr	

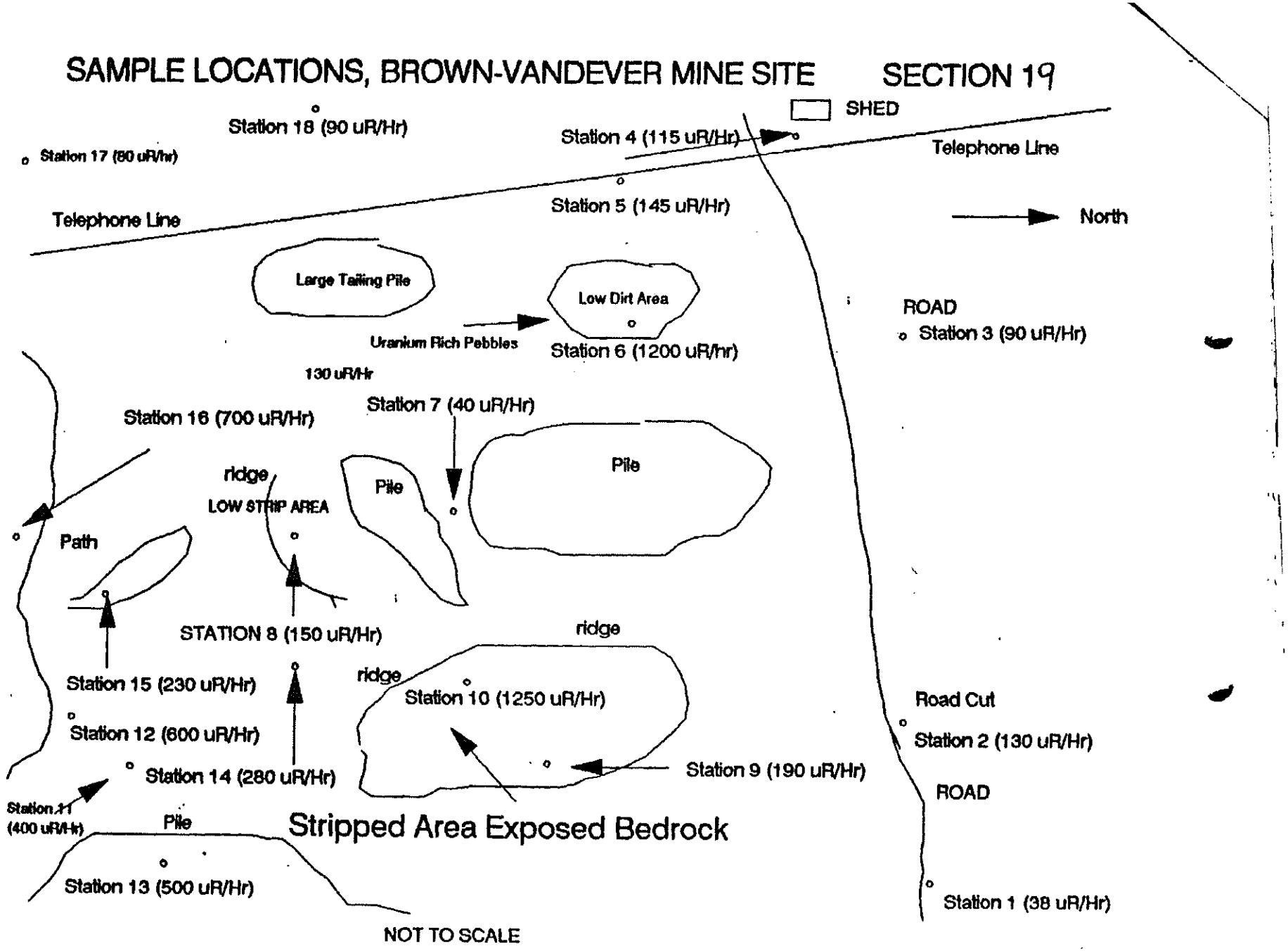

Figure 5. Section 1 B-V.

Preliminary Index to the Administration Record

AUTHOR		ORGANIZATION AND SUBJECT
1)	Patrick Molloy	Navajo Nation Superfund: Preliminary Assessment for the Navajo-Desiderio Group Uranium Mines. April 1, 1990.
2)	Patrick Molloy	Navajo Nation Superfund: Preliminary Assessment for the Brown Vandever Uranium Mines. April 6, 1990.
3)	Robert Bornstein	U.S. Environmental Protection Agency: Navajo-Brown Vandever and Navajo Desidsiderio Uranium Mining Areas Preliminary Assessment Workplan. November. 7, 1990.
4)	Robert C. Williams	Agency for Toxic Substances and Disease Registry (ATSDR): Public Health Advisory Navajo-Brown Vandever and Navajo Desidsiderio Uranium Mining Areas. November 21, 1990.
5)	Robert Bornstein	U.S. Environmental Protection Agency: The Radionuclide, Metal and Gamma Survey Data Package. January 29, 1991.
6)	Sharon Seidel	U.S. Environmental Protection Agency: Navajo Bluewater Site-Preliminary Risk Assessment. May 30, 1991.

Miscellaneous Documents

1) Various Aerial Photographs, USGS Topographical maps, BLM Surface Mineral Management Maps, and BIA Realty Maps.

Guidance Documents

1) Guidance Document: Superfund Removal Procedures #3, OSWER #9360.0-038, 02/01/88.

2) Guidance Document: Removal Cost Management Manual (Secondary Reference), OSWER #9360.0-028, 04/01/88.

3) Guidance Document: Land Disposal Restrictions, 08/11/87.

4) Guidance Document: Emergency Response Cleanup Services Contracts (ERCS), Users' Manual, October 1983, 10/01/83.

5) Guidance Document: National Oil & Hazardous Substances Pollution Contingency Guidance, Part 300, 40 CFR CH.1 (7/1/85 Edition), pp. 664 - 755, 07/01/85.

6) Guidance Document: Superfund Amendments & Reauthorization Act of 1986 (SARA), 10/17/86.

7) Guidance Document: Interim Guidance on Administrative Records for Selection of CERCLA Response Actions, OSWER 9833.3A, 03/01/89.

8) Guidance Document: Superfund LDR Guide #7: Determining When Land Disposal Restrictions (LDRs) are "Relevant and Appropriate" to CERCLA Response Actions, OSWER 9347.3-08FS, 12/01/89.

9) Technical Assistance Team Report from Preliminary Assessment

10) The National Council of Radiation Protection and Measurements (NCRP) Report 91 (1987), "Recommendations on Limits for Exposure to ionizing Radiation."

Attachment 4

Site Screen Report
Haystack No.1 - AUM Site
Weston Solutions, Inc. May 2009

Navajo Abandoned Uranium Mine Site Screen Report

This form is for use at the site of abandoned uranium mines (AUM) located on Navajo Nation lands. Applicable sites include all mine and mine features that have or have not undergone reclamation by the Navajo Abandoned Mine Lands Reclamation Program, including features, adits and pits. Applicable sites also include all AUM sites listed in the USEPA CERCLIS database, all sites listed in the 2008 AUM GIS Report issued by USACOE and USEPA, all AUM sites on allotment lands associated with the Navajo Nation, and any and all AUM sites lands not listed in any database located on Navajo lands. Reconnaissance of any sites located on lands adjacent to Navajo lands but that are or may be impacting Navajo lands will need to be coordinated with the authorities appropriate to those lands.

The purpose of the form is to ascertain the status and location of the identified AUM site, to record all immediate site information associated with the mine site and to document the recommendation and/or decision on what additional steps, if any, are needed at the site.

Haystack No. 1 AUM Site

Navajo AUM Eastern Region

Prepared by:

Weston Solutions, Inc.

Contract: W91238-06-F-0083

12767.063.496.1111

May 2009

Part I Site Identification, Location and Status

Site Names and ID numbers as applicable

Mine ID: 344

Map ID: E82

CERCLIS: NNN 000 908 720

NAMLRP: NOT ASSIGNED

New Mexico Mining and Mineral Division ID: NM0047

New Mexico Bureau of Geology and Mineral Resources: NMMK0081, 0077,0080

Local name / Aliases: Haystack – Section 19 Open Pit Complex

Chapter and local area: Baca/Haystack Chapter

Lat/Long: 35.3457135782 N / -107.943650564 W

Nearby road and highway: Haystack Road (BIA 23), Red Mountain Road (BIA 41)

Local Post Office: Prewitt, NM

Land Status: check one or more and provide ownership and contact information below

Tribal Trust Land	☐
Tribal Fee Land	☐
Allotment	☒
Fee land	☐
Public lands	☐
Private	☒
Bureau of Land Mgmt	☐
State	☐

Ownership and contact information:

The majority of the mine site property is located as private land with a smaller portion located on Indian allotment located at the northern extent of the mine.

Part II Site Observations

Observed Structures: list number of and describe human habitation status of structures at the following distances from mine:

0 to 200 feet: None **200 feet to 0.25 mile:** None

Observed Public or commercial structure: list and describe all schools, clinics, Chapter Houses, places of business and any other structure used by members of the community at the following distances:

0 to 200 feet: None **200 feet to 0.25 mile:** None

Levels measured around the perimeter(s) of the identified structure(s):

None

Observed water sources: list the number and type of wells and surface water sources that are potentially used for human consumption at the following distances from the mine:

0 to 0.25 miles: None **0.25 miles to 4 miles:** None

Sensitive environments: note and describe all sensitive environments located within visible range of the mine site, including: wetlands, endangered species habitats and approximate locations of sites that may be under protection of the government of the Navajo Nation.

None observed

Known Site History: include information from interviews with Chapter officials and residents.
Note information on mine ownership, period of operation, and type of mining operation.

The Haystack No. 1 mine consists of an area of 279,659.30 square meters. Any historical information pertaining to mining operations and historical ownership of the mine site appeared to be unclear.

Part III Type, number and reclamation status of mine features

Provide description and reclamation status of all mine sites and features at site. Include all waste piles, adits, pits and other features, and indicate whether they are open, closed, covered, capped, buried or unreclaimed. Indicate approximate size, shape and extent, including description of any reclamation caps. Note condition of all reclamation caps.

Reclamation status of the mine sites are currently unknown. The mine appears to have been reclaimed. The portion of the mine on private property was fenced and posted with signs warning of underground radiological hazards. The signs were faded and nearly illegible. No adits or other mine features were observed during the site visit.

Part IV Summary of radiological readings

Background Locations

#1 10,310 cpm
#2 9,952 cpm
#3 8,504 cpm

Mine site: Haystack No. 1
- See Figures 1 and 2

Nearby Structure Perimeter – None

Describe any other radiological measurements:

A total of 7,045 gamma radiation measurements were collected from mine sites, ranging from 5,965 cpm to 626,434 cpm. The measurements are represented in Figures 1 and 2.

Part V Site sketch of all mine features and readings, including locations of all structures, sources of drinking water and any other important features and radiological readings.

Presented in Figures 1 and 2

Part VI Response Action Summary

Site Name(s): Haystack No. 1 **Chapter:** Baca/Haystack

Decision Criteria

Is there an unreclaimed waste pile at the site? No

At what distance from the waste pile is the nearest residential structure located? N/A

At what distances from the waste pile are there potential drinking water sources? N/A

Is there a reclamation cap or sealed adit in place at the site? No

Is the cap/seal functionally intact? yes

Is the cap/seal sufficiently degraded to create a concern about releases? no

At what distance from the cap/seal is the nearest domestic structure located? One residence is located on the mine; two others are located within ¼ mile. A church is also located within ¼ mile from the site.

At what distance from the cap/seal is the nearest domestic drinking water source?
0.6 miles

Summary of emergency response factors

None

Summary hazard ranking system factors

None

Summary of reclamation factors

No known reclamation

Part VII Photos

Photo 1. Haystack No 1 Mine site, towards the southwest

Photo 2. Haystack No 1 Mine site, towards the south

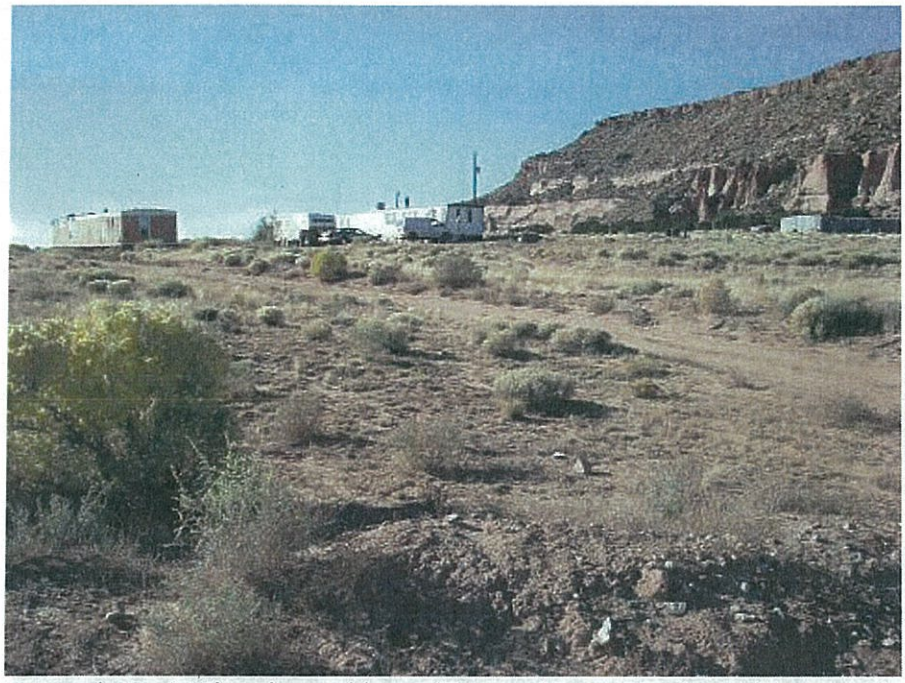

Photo 3. Haystack No 1 Mine site, residence (Tom and LeneaVandever) locate on the mine site

Photo 4. Haystack No 1 Mine site, open hole or vent near residence

Photo 5. Haystack No 1 Mine site, section corner survey marker

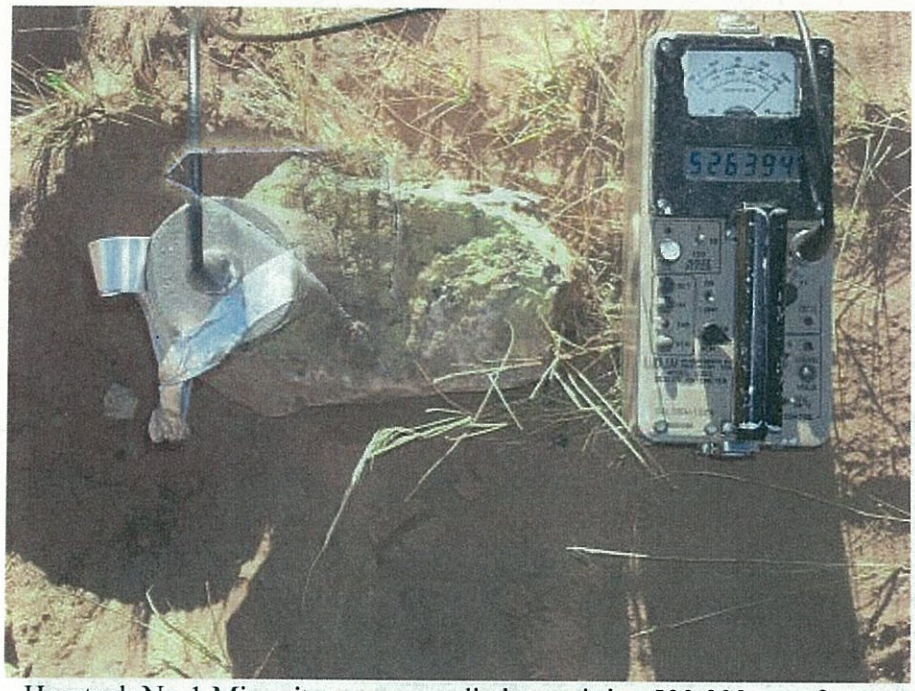

Photo 6. Haystack No 1 Mine site, gamma radiation emitting 500,000 cpm from waste rock located near residence

Photo 6. Haystack No 1 Mine site, faded sign posted on portion of mine located on private property warning of subsurface radiological hazards

Photo 6. Haystack No 1 Mine site, waste piles on mine

Part VIII Contacts Reports and Information

Name Tom and Lena Vandever

Title or official role (if any) resident

Telephone number POB 518 Prewitt. NM 87045

Information provided Lives within the mine boundary. Father is Brown Vandever who lives next door just off of mine (POB 262 Prewitt. NM 87045

Name Stanley Edison

Title or official role (if any) Navajo EPA Superfund Program

Address PO Box 2946. Window Rock, AZ 86515

Information provided General Background and Contact/Access Information

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Name Ms George Padilla

Title or official role (if any) Regional Environmental Scientist, BIA. Navajo Nation

Telephone number (505) 863-8434

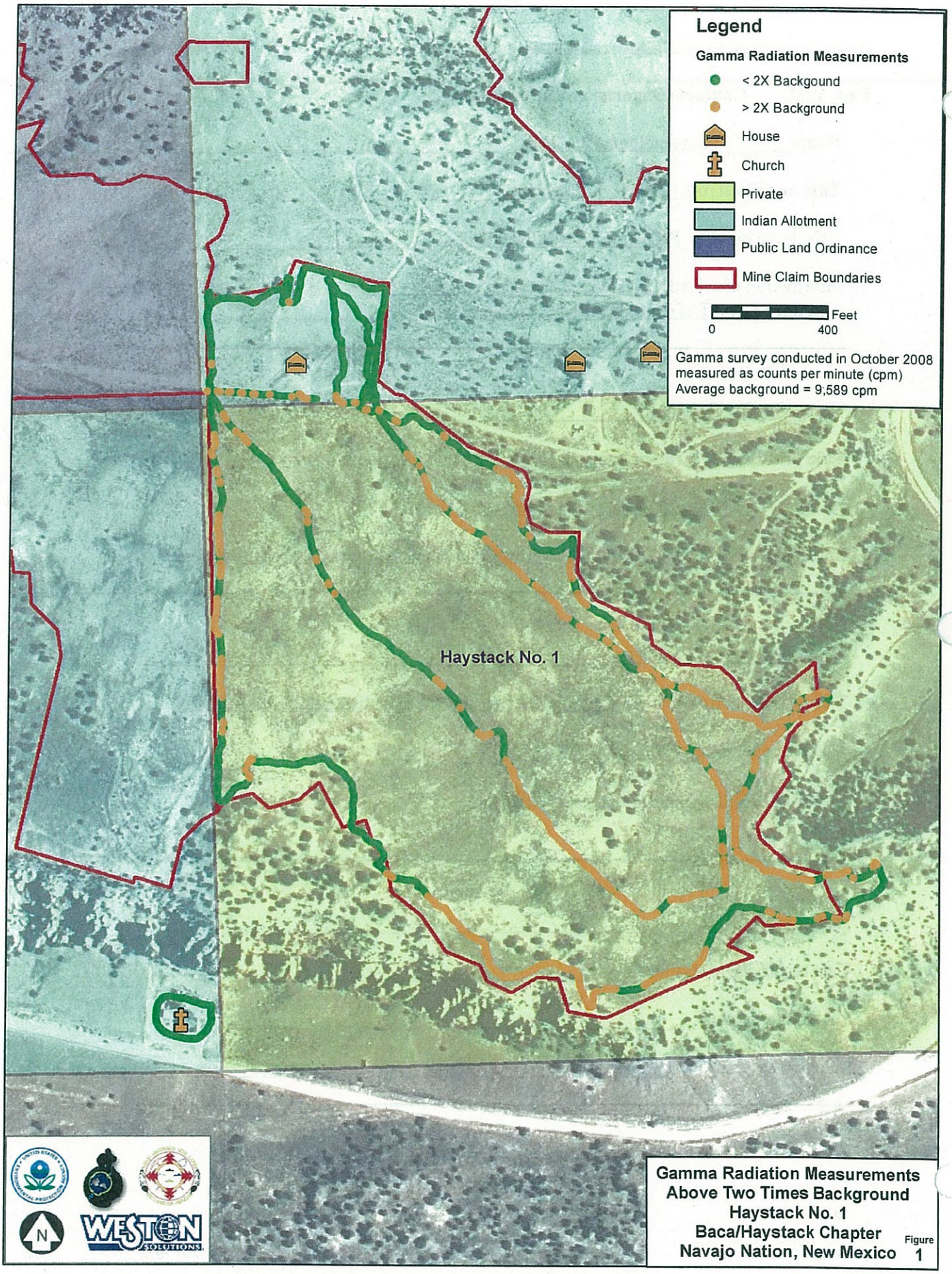
Address PO Box 1060. Gallup. NM 87305

Name

Title or official role (if any)

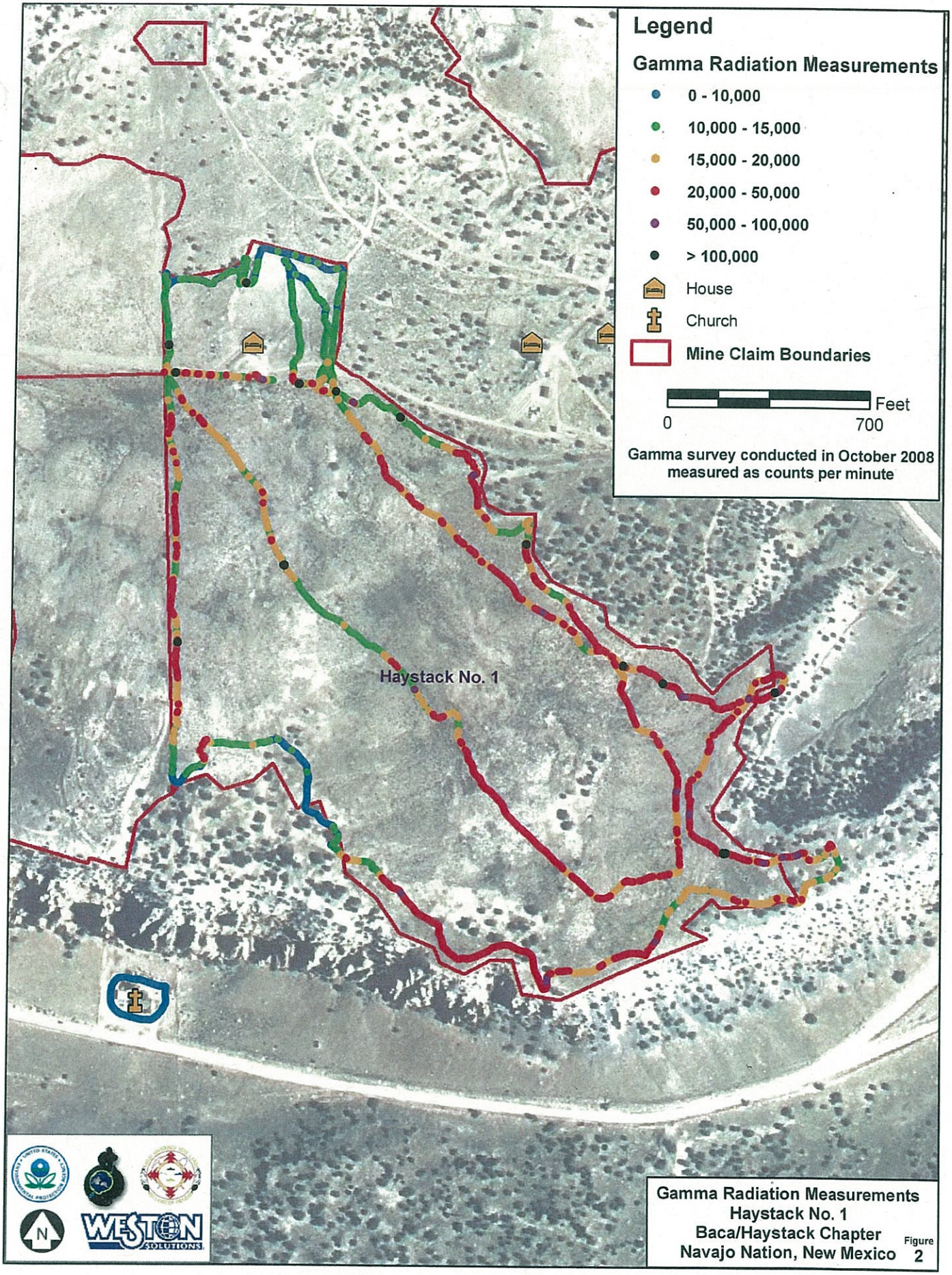
Telephone number

Information provided



Gamma Radiation Measurements Above Two Times Background
Haystack No. 1
Baca/Haystack Chapter
Navajo Nation, New Mexico

Figure 1


Legend
Gamma Radiation Measurements
0 - 10,000
10,000 - 15,000
15,000 - 20,000
20,000 - 50,000
50,000 - 100,000
> 100,000
House
Church
Mine Claim Boundaries
Feet
0
700
Gamma survey conducted in October 2008
measured as counts per minute
Haystack No. 1
WESTON SOLUTIONS
Gamma Radiation Measurements
Haystack No. 1
Baca/Haystack Chapter
Navajo Nation, New Mexico
Figure
2